INTERNATIONAL JOINT COMMISSION GREAT LAKES WATER QUALITY AGREEMENT PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

[We apologize for any spelling errors in this verbatim transcript.]

OPENING WELCOME AND INTRODUCTIONS.
    Saturday, November 1, 1997
    Chair Baldini

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John Mahan
Tanya Cabala, Lake Michigan Federation
Edith Chase
Wayne Schmidt, National Wildlife Federation, Director, Ann Arbor
Jack Weinberg, Greenpeace
Kathleen Evans, Muskegon Conservation District
Connie Bimber
Russel Bimber
Bill Borden, Lake Michigan Federation
Laura Mowat and Candace Sharpe
Tom Baldini, U.S. CoChair, IJC

GREAT LAKES ADVISORY BOARD PRESENTATIONS
Sunday, November 2, 1997
L.H. Legault, Chairman, Canadian Section, IJC

GREAT LAKES WATER QUALITY BOARD
- *Vic Shantora, Canadian CoChair, Water Quality Board and Director General, Toxic Pollutant Prevention Directorate, Environment Canada*
- *Kelly Burch, member, WQB and Chief, Pennsylvania Department of Environmental Protection*
- *Tracy Mehan III, member, WQB and Director, Office of the Great Lakes, Michigan Dept. of Environmental Quality*
- *David Ullrich, U.S. CoChair, Water Quality Board*
- Questions and Answers

COUNCIL OF GREAT LAKES RESEARCH MANAGERS
- *Harvey Shear, Canadian CoChair, CGLRM*
- *Jeffrey Reutter, U.S. CoChair, CGLRM*
- Questions and Responses

INTERNATIONAL AIR QUALITY ADVISORY BOARD
- *Donald McKay, Canadian CoChair, IAQAB, and Atmospheric Environment Service of Environment Canada*
- Questions

GREAT LAKES SCIENCE ADVISORY BOARD
- *Tony Wagner, Canadian Cochair, Science Advisory Board*
- *Theo Colborn, member, Workgroup on Ecosystem Health and World Wildlife Fund, Washington, DC*
- *Michel Fournier, Cochair, Workgroup on Ecosystem Health, and National Institute for Scientific Research, Montreal*
- Questions

Alice Chamberlin, U.S. Commissioner, IJC

FIRST NATIONS/NATIVE AMERICANS PRESENTATIONS

Rick Peters, EAGLE Project, Assembly of First Nations
Pam Sky, member, Six Nations Confederacy, Cayuga Nation
Jackie Warledo, Great Lakes Region Indigenous Environmental Network
Maxine Cole, First Nations
Tom Goto, Naional Coordinator, Indigenous Environmental Network
Eric Johnson, Assembly of First Nations
Walt Bresette, Lake Superior Chippewa

HIGHLIGHTS OF IJC RECOMMENDATIONS TO GOVERNMENTS

L.H. Legault, Chairman, Canadian Section
Alice Chamberlin, U.S. Commissioner, IJC
Susan Bayh, U.S. Commissioner, IJC

PUBLIC MEETING - PART 3

Jim Chandler, U.S. Secretary, IJC
Dan Emerton, United Autoworkers
Ken Bondy, Canadian Autoworkers, Windsor
Ziggy Kleinau, citizen and member of Great Lakes United
Susanne Schulte, student
Nicole Marsh, student
Judy Pratt-Shelley, Tribal member and representative of Lake Superior Ojibway
Elaine Marsh, citizen, Ohio
Martin Visnosky, citizen, Erie, Pennsylvania
Pat Lupo, Benedictine Sisters, Erie, Pennsylvania
Susan Bayh, U.S. Commissioner, IJC

LABOUR PRESENTATIONS

Jim Mahon, Environmental Chairperson, Local 1520, CAW Union
Ken Glassco, Communication, Energy and Paper Workers of Canada
Jane Perkins, AFL-CIO

SUNY AT BUFFALO STUDENT PRESENTATIONS

Barry Boyer, SUNY, Buffalo
Amy Kendall-Scoins, student, SUNY, Buffalo
Kevin Reedy, student, SUNY, Buffalo

LAKE ONTARIO RAPs PRESENTATION

Elain Kennedy, Lake Ontario Remedial Action Plan

LOCAL GOVERNMENT PRESENTATIONS

Barbara Cavenaugh, Council member, Buffalo, New York
Ken Schmidt, General Manager, Essex Regional Conservation Authority

NIAGARA RIVER RESTORATION COUNCIL PRESENTATION

Jim Greer, Chair, Niagara River Restoration Council
Bonnie Soley, Cochair, Niagara River Advisory Committee (U.S.)

PUBLIC MEETING - PART 4

Daniel Green, Montreal, Quebec
Bob Olsgard, Lake Superior Alliance
Raymond Vaughan, Coalition on West Valley Nuclear Waste

Jim Cowden, Member, Cuyahoga River RAP, Chairman, Health Committee. Rep., Lake Erie LaMP
James Pitts, representative, Common Council, City of Buffalo
Terry Yonker, Executive Director, Lake Erie Alliance
Carol Mongerson, Rep., Coalition on West Valley Nuclear Waste
Laura Rose Day, NWF, GLNRC and citizen member, Lake Superior Binational Forum
James Rauch, West Valley Coalition
Christina Bates, Akron, Ohio
Jerry Bates
Kathryn Savoie, Arab Community Center for Economic & Social Services, Dearborn, Michigan
Doug Anderson, Haudenusaunee Scaruda Tuscarora Nation
Karey Shinn, Chair, Safe Sewage Committee
Jim Jontz, Citizens Trade Campaign, and Western Ancient Forest Campaign (U.S.)
James Rauch, West Valley Coalition

CLOSING COMMENTS
L.H. Legault, Chairman, Canadian Section, IJC

INTERNATIONAL JOINT COMMISSION GREAT LAKES WATER QUALITY AGREEMENT PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

OPENING WELCOME AND INTRODUCTIONS
Saturday, November 1, 1997

Chair Baldini

Welcome to Niagara Falls and to the International Joint Commission's 1997 Great Lakes Water Quality Public Forum. It's heartening to see you here this morning. I know that many of you probably still prefer to be out in the corridors because that's where we get most of our discussion and catch up on what's going on in the areas, but we appreciate you coming in and sitting down.

My name is Tom Baldini, and I am the Chair of the U.S. Section of the International Joint Commission for Canada and the United States. Let me introduce to you, my colleagues who are here also today. I'll start on my far left -- Frank Murphy, Canadian Commissioner from Vancouver; Susan Bayh, U.S. Commissioner from Indiana; Pierre Béland, Canadian Commissioner from Montreal; Chairperson, Chairman Leonard Legault of the Canadian Section; Alice Chamberlin from New Hampshire, U.S. Commissioner.

We are here today for three reasons: First we're here to hear from the governments about progress under the Great Lakes Water Quality Agreement [GLWQA/Agreement]. And as you know, under the terms of the Great Lakes Water Quality Agreement the governments undertake programs and report on that progress. In the State of the Lakes Ecosystem Conference [SOLEC] Governments provide an opportunity to learn about actual environmental conditions. The most recent conference was held in November 1996 and governments released their 1997 State of the Lakes report about a month ago.

As a complement to SOLEC today, we will hear from governments about Agreement progress from a program and policy perspective.

Secondly, we're here in Niagara Falls to hear from our boards. We have four boards that provide advice to us about Agreement matters, specifically, the Great Lakes Water Quality Board, the Science Advisory Board, the International Air Quality Advisory Board and the Council of Great Lakes Research Managers. The boards have already provided detailed advice to us in their 1995-97 Priorities reports, and copies of those are available at the desk. It's this document here and they are out front. We would appreciate it if you would pick this up and review those.

Tomorrow morning, our four boards will focus on critical Great Lakes issues; issues which must be addressed and resolved, if all of us are to fulfill the promises in the Agreement. The boards are looking for your feedback.

Thirdly, we are here today and tomorrow to hear from you, the public. This is an Agreement Public Forum, and for us -- the Commission -- to fulfill our obligations under the Agreement, we need your insight and your advice. Without your voice, we cannot do our job.

And what is that job? Through the Agreement as stated in Article II, the governments of our two countries committed "to restore and maintain the chemical, physical and biological integrity of the waters of the Great Lakes Basin Ecosystem." Under the Agreement we -- the Commission -- assess the adequacy of programs and progress to fulfill that purpose. We provide our evaluation and assessment to governments through our biennial report. We will prepare our next biennial report -- our ninth -- early in the new year.

That report will be based upon the advice and insight that we have received during the past two years through a variety of means. Our program is designed to ensure that we consult with the widest range of people possible. We have focused on interaction and dialogue, to ensure that we consult, not just give and receive information.

During the past two years, we have held specific sessions with industry, labor, Native Americans and First Nations. We have held public meetings on topics of particular interest, such as pesticides and human health. We have focused on Remedial Action Plans, and Lakewide Management Plans. We have expressed our concerns about the adequacy of Great Lakes science and research. We have asked for -- and received -- detailed written advice about Agreement progress. I could go on and on. Suffice it to say that we have received a lot of excellent advice. In fact, we have more than 40 reports and documents that will contribute to the formulation of our assessment of Agreement progress. A partial list of these is available at the registration desk, and many are available on our web site.

But, to carry out our responsibilities, we must hear from you. That is why we are here today and tomorrow, to solicit that input.

Let me explain how these two days are going to be organized. This morning we are going to receive a brief report on a roundtable that we held yesterday in Niagara-on-the-Lake. We will then turn the floor over to the governments, who will report on progress and programs. We understand that there will be time for questions and answers from the group for the government officials.

This afternoon after lunch we will hear from you. Part of the time will be an open microphone, and part of the time allocated to specific groups. We opted for this allocation in order to accommodate the schedule of some of the people who want to speak, and more importantly, to make more efficient use of the time available to hear from you.

Tomorrow morning, we will start with presentations by our four boards at 9:00 a.m., and then return to the open microphone format again, with some time slots allocated for short presentations. Also tomorrow, immediately following lunch we will be making an announcement on a major policy paper that we have delivered to the governments. As some of you may know, the two governments when the Prime Minister and President met in April, they gave us a specific charge. We have responded to that, we have met with the governments. That report will be issued publicly on Monday, so we are issuing it here tomorrow to you, to have a preview. The Commissioners will review that with you tomorrow after lunch.

The procedure to make a presentation is quite straightforward, and the same as we have used in previous years. At the registration desk, you will find speaker request cards which I think some of you have probably identified. Just fill these out and return them to the person at the desk. We will then call you, giving you a bit of a "heads up" by announcing three or four speakers, so you can come to the microphone. Recognizing your schedule, please indicate on the card your time preference to speak, and we will try to accommodate you so that you can speak at that time.

That is probably more than enough introduction for the next two days. But I do however, have two other things that I do want to cover with you before we get on to the presentations.

First, at 4 o'clock this afternoon, we will unveil a plaque commemorating the 25th Anniversary of the Agreement. The plaque is on a boulder, and under the boulder we have buried a time capsule, containing our vision of the future. The capsule will be unearthed on the 50th Anniversary of the Agreement, in the year 2022. Starting at 3:30 today, bus transportation from in front of this conference centre [Ameri-Cana] and back will be provided for those who would like to attend. More specific information regarding the bus schedule is also at the registration desk, along with maps.

This evening we will hold a celebratory dinner which will provide an opportunity for us to reflect on our numerous accomplishments over the past quarter century, and also to energize our self for the next 25 years, for that job and that journey that we have to complete. In keeping with the binational spirit, the dinner will be held across the river at Niagara Falls, New York Convention and Civic Center. The speakers tonight are John Garamendi, Deputy Secretary of the U.S. Department of the Interior, and John Frasier, the Canadian Ambassador for the Environment. We will also this evening recognize Val Adamkus, recently retired from a long and distinguished career in public service, especially on the Great Lakes.

Again, bus transportation will be provided from here to the Convention Center and back starting at 5:00 p.m.

Tickets for the dinner are required and advance purchase is necessary. However, we do have a few extra, and if you would like one we urge you to see Chuck Stoffle, who is either here or out at the registration desk right now, who will be at the registration desk during the coffee breaks and during the day, for you to purchase a ticket. But you will need a ticket for the dinner.

At this point, let me just also mention that there will be other activities. This is a no-smoking event. Rest rooms are out there to the right; my right, your left. With that, let me call on our next speaker who will be Dr. Pierre Béland, our Commissioner who will report on the Great Lakes Roundtable that was held yesterday in Niagara-on-the-Lake.

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REPORT FROM THE GREAT LAKES ROUNDTABLE, OCTOBER 31, 1997

Commissioner Pierre Béland

Bonjour. [French] For those who did not understand what I said, you can ask Daniel Green or Ken Ogilvy. I noted they're here.

We had a roundtable yesterday and the focus of that roundtable was on health effects from toxic compounds. The goal was to develop advice that the Commission could bring to the Parties in our next biennial report. So the issue was about the fact that there is increasing scientific evidence, and that evidence is definite and it is broadly accepted, even though there is still some disagreement -- and we heard about that yesterday at the roundtable -- that persistent toxic substances and most particularly DDT and PCBs have and continue to cause injury to humans in the Great Lakes basin. The recent human health studies indicate that: (1) reproductive functions may be disrupted by exposure to PCBs and other PTSs; (2) neurobehavioural and developmental deficits occur in newborns and continue through school-age children, from in utero exposure to these substances; (3) other systemic effects, e.g. liver disease and diabetes may be associated with elevated serum levels of PCBs; and (4) increased cancer risks are associated with PCB exposure.

These findings that people have been hearing about for years, for the first time recently, agencies both in Canada and the U.S. have determined that these effects are real and occurring. So we wanted through that roundtable to explore and identify potential strategies to address this issue and to provide, as I said, advice to the IJC that we could then examine and carry to the Parties. Approximately 30 representatives participated. They were from a broad cross-section of sectors and perspectives, including: agriculture, communication, education, environmental, non-government, government, industry, labor, Native American/First Nations, research, social and economic. Another 40 or so people, observed the Roundtable discussions.

I will summarize the advice or the Priorities for Action that were identified. I want also to say that this roundtable came after a big health conference in Montreal, after a workshop that we had in Collingwood on Sediment Remediation, after another workshop in Wingspread, all these leading to this final event yesterday. What was identified yesterday were the following priorities:

- **Evaluate Existing Programs**, to examine them -- the RAPs, the LaMPs -- to identify strengths and weaknesses in those programs based on 20, 15, depending on the program, 10 years of experience. And measure progress towards program goals taking account of social, economic and environmental factors. That the IJC should conduct these evaluations and recommend improvements where needed.
- **Establish a "Just Transition" Process** in an attempt to bring together all stakeholders to address the social and economic implications of bans and phase-outs of specific substances, and to undertake transition planning. I think it was believed that this type of transition planning is going

to be needed, whatever the activity we are considering. If we are going to move from the previous type of society that brought us up and the next type of society that we want if we want to live in equilibrium with our environment. Mercury was identified as a possible case study to pilot a transition planning process. And it was recommended that this be done under the IJC umbrella. That we should support and facilitate this initiative.

- **Develop Creative Partnerships for Clean-Up**. To facilitate further development of hybrid partnerships and creative financing arrangements (e.g. Ashtabula Partnership), and communicate success stories to other Areas of Concern. The IJC could help facilitate partnership development and communication of successes.
- **Establish a framework for greater government accountability**. Such a framework would include a tracking system of loadings to the lakes, specific indicators of human health and environmental quality, and requirements for the Parties to report on progress based on these specific indicators. The IJC should maintain its traditional role as the lead advocate for accountability, and develop specific recommendations for action by governments. I think the idea there was that the suggestions were that the IJC think in terms of smaller targets that would then constitute milestones that would be easily measurable as to whether or not the Parties have made a specific progress during the two year periods.
- Improving **Public Education and Communication**. That campaigns are needed to inform the public about the injury issue, its causes and effects, and to provide impetus for action. These campaigns should be aggressive, that they should feature mainstream messages and focus on the social and economic aspects of the issues.
- **Put humans back in the ecosystem**. To enhance basinwide understanding of human health effects through consideration of health issues by the RAPs and LaMPs, which in our view have not been incorporated enough into the LaMPs specifically. Ensure that adequate funding is available for health-related research. The IJC should encourage the Parties to incorporate health issues as part of RAPs and LaMPs.
- Advice on **economic analysis of costs and benefits.** Demonstrate the costs of injury by the toxic substances. Costs in terms of health, in terms of not being able to use harbours, beaches, waterways. To put this in relation to the cost of actually cleaning them. There is a feeling that they would balance out and even would come out on the favour of cleaning up.
- IJC should urge the Parties to insure that measures to address PTSs are included in international fora and agreements regarding **atmospheric deposition** from outside the basin.

This short summary, I think will be available at the back of this room or in the atrium. Marty [Bratzel] is telling me that there are 500 copies or so in the atrium. So you could have two copies each. So we will use this advice in preparing our response and preparing our ninth biennial report. As we will use the advice we will hear from you in the next two days. Thank you.

Commissioner Frank Murphy

My name is Frank Murphy. I'm a Canadian Commissioner, and I want to introduce the representatives of the Canadian and United States governments. The governments explicitly stated in the Water Quality Agreement, "to restore and maintain the chemical, physical and biological integrity of the waters of the Great Lakes Basin Ecosystem," marked the first time that two nations explicitly recognized that a comprehensive approach was required to cope successfully with human made pollution. What also made the Agreement noteworthy, and have captured the interest of many others including nations, are the Agreement concepts of virtual elimination and zero discharge. I know that you are eager to hear the governments report to you on the progress that they are making and with no further ado I'll introduce them. This is my second meeting of the biennial.

The last time I was accused the odd time of appearing to be snoozing when I was being quite contemplative. So those accusations will not be made again. The Commissioners are going to leave the stage now, and I'll introduce the government representatives. Will they come up as I introduce them please?

Mr. Dave Ullrich, U.S. EPA, Acting Regional Director for Region V in Chicago; John Mills, Regional Director General of Environment Canada's Ontario Region; Jeanne Fox, U.S. EPA's Regional Administrator for Region II in New York; Ivy Wile, Assistant Deputy Minister for Ontario's Ministry of Environment and Energy; and, Bob Perciasepe, U.S. EPA's Assistant Administrator for Water in Washington, DC. Thank you very much.

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GOVERNMENTS' PRESENTATIONS

John Mills, Environment Canada

Good morning, ladies and gentlemen. [French] Commissioners, colleagues and Great Lakes constituents. On behalf of the Parties of the Great Lakes Water Quality Agreement, the governments of Canada and the United States, I would like to thank the Commission for the opportunity to participate in this morning's program on a public forum. [French].

The Great Lakes basin is a region of substantial economic activity. An area that's steeped in history and is pivotal to the development of both our nations. It's also an area of unique natural and environmental resources. Water in the Great Lakes integrates the effects of history, economic activity and resource exploration. Inevitably, in a discussion of water quality an array of interests and perspectives are evident. The Commission is charged with listening to these interests and these perspectives and providing an objective appraisal of the efforts of the two countries to as the Agreement states, "restore and maintain the integrity of the waters of the Great Lakes Basin Ecosystem." The Commission has served us well in this difficult task and we certainly wish you well in your present deliberations. The task for the governments in this session is to report on activities conducted over the past two years, to present information on some of the accomplishments we believe we have achieved, and to speak about some of the priorities and challenges that we have for the future.

By way of a brief explanation, I would like to outline the structure of the government's presentation. Following some introductory comments from both governments, Mr. Dave Ullrich, Region V Administrator for the United States Environmental Protection Agency and I will provide an overview of the binational effort. This will be followed by a short break. After the break there will be a presentation on the domestic program of the United States given by Dave and Jeanne Fox, Region 2 Administrator of EPA. Following that, the Canadian domestic program will be presented by Ivy Wile, Assistant Deputy Minister for Ontario's Ministry of Environment, and myself. We have left time at the conclusion of the presentation for discussion and questions. In this regard, I would encourage listeners to make mental notes or reminders of things that they have heard during the presentation, that they would like to raise questions and bring them up during that question and answer period. At the end of the presentation, government representatives here will be available in the foyer in the lobby for media interviews.

Canada is aware of the Commission's ongoing interest in determining the level of government commitment to the Great Lakes and the extent to which the obligations under the Great Lakes Water Quality Agreement are being met. The Commission has noted with concern the significant changes that have occurred in government agencies. In Canada, both at the federal and provincial levels, there have been budget cutbacks that are part of a more global trend toward reducing government expenditures and debt. I would stress however, that despite these pressures we have maintained our commitments on the Great Lakes by identifying key priorities and protecting those associated resources.

Canada also continues to pursue policy and legislative initiatives at the national level which reinforce our programs and priorities for the lakes, specifically, a major statutory review of the Canadian Environmental Protection Act was undertaken, and a revised Act introduced into House of Common in December of 1996. The Bill was co-sponsored by the Ministers of Environment and Health, and that bill would strengthen and modernize the Act. The June 1997 federal election intervened in the passage of the Bill, but the government has announced its intention to reintroduce the Bill to revise the Act. That June election also intervened in the passage of a bill to establish a Canadian Endangered Species Protection Act, legislation which would be supportive of our programs and activities on the lakes. Discussions are continuing on the reintroduction of this Bill as well.

To participate in this brief introductory session and provide some perspectives from the United States, we are pleased to have with us this morning, Mr. Bob Perciasepe from Washington. Mr. Perciasepe is the Assistant Administrator for Water in the U.S. EPA Agency. In this position, he has responsibility for the National Water Quality Management Program, a responsibility covering a broad range of activities from standard setting, to permit of discharges, to the linking of the ecosystem management with water quality programs. Bob is also a friend of the Great Lakes. I believe that one of his first official functions almost immediately after being confirmed and sworn in, was to appear before this Commission in the Great Lakes Biennial Meeting in October of 1993. He also spoke at the Duluth meeting of 1995. We are pleased that Bob is with us today.

Bob Perciasepe, U.S. EPA

Thank you, John. Commissioners, I want to thank you for the invitation in hosting this biennial meeting. I think that it's fitting that we are here in Niagara Falls celebrating the quarter century birthday of probably one of the most historic environmental initiatives in history and one that has continued to produce good results. But I think as the Commissioners clearly laid out in their introductory remarks today, significant challenges remain in front of us. I want to also point out that this month, or just the month that ended yesterday, marked the 25th Anniversary in the United States of the enactment of the Water Pollution Control Act of 1972 or as we call in shorthand, the Clean Water Act. In many ways, in the United States most of the tools that we were given to live up to our many parts of the Agreement were provided in the Clean Water Act and to help us meet our obligations. I think we will hear a lot about the progress over the next several hours and days and I'll mention some of those key points in my opening remarks as well, but we also have to keep in mind some of the hurdles in front of us as we are thinking about how we are moving incrementally forward.

There was another interesting thing about 25 years ago, give or take a few years, something came into our terminology which we don't use too much anymore, called "spaceship earth." We can all smile with some of the current science fiction movies and whatnot but believe me, 25 years ago, those who lived through the era when pictures of the earth came back and were on the front pages of newspaper as a blue orb sitting out in the darkness of space, I think as humans our view of this planet we live on and its fragile positioning in the cosmos, I think was changed and I think changed forever. I think that played an important role in some of the work that all of us were doing 25 years ago in the environmental movement and the birth of some of the more modern environmental programs that we both have in Canada and the United States.

So 25 years, a quarter century is an interesting time to reflect on all of these things. I think we need to continually remind ourselves -- we have to force ourselves to remind ourselves -- on how fragile our environment and our ecosystems really are. I think that can help us to be motivated to the challenges that we have to deal with. And speaking of challenges, John mentioned that it's been two years since the Duluth meeting, and at that meeting in some of my opening remarks, I issued a number of challenges to a number of the stakeholders. . . and I'm not going to go through those in detail here, but we will hear some of it as we go through some of the government reports during the course of the day. I would like to highlight a couple of them that I thought were kind of interesting as I looked to see how we were making making progress.

I remember the Commissioner of Environment from the State of Minnesota was at the meeting in Duluth, it was as a host state, and he challenged the federal government to not sell 11-million pounds of mercury held by the Department of Defense, and I'm pleased to report today that the sales of that 11-million pounds of mercury remains suspended, and we continue to work with the Department of Defense to come up with proper ways to deal with the long-term management of that stockpile.

In April of this year, the two countries signed a Binational Toxics Strategy which set some very specific goals for us to achieve, which sets us further on the course to virtual elimination. The Great Lakes Initiative that is being enacted by the states in the United States at this time, I challenge us to have that completed by the next biennial. I am somewhat happy to report, but happy to report that four of the states have completed their adoption process -- Indiana, Wisconsin, Michigan and Ohio -- and the remaining states are on track to get theirs done by the end of this year. I want to pledge today with the Environmental Protection Agency and working with the states, that we will get those completed by early 1998. That will represent rules that will as they are implemented, reduce toxic pollution into the Great Lakes from the U.S. side by over a million pounds.

Also I made some challenges to the private industry and business sector, that they need to step up and move beyond compliance with the laws. One notable example I would like to mention here, is the chlor-alkali industry that has stepped up and is looking at a 50% reduction not only in emissions of mercury but also of use of mercury. So we are going to work with them to see how we can continue to push that.

Some national highlights from the U.S. side. Probably one of the notable things that has been happening over the last two years -- and I guess this is not a mystery to most people -- is the dynamic between the executive branch of government and the legislative branch of government in Washington. Two years ago, the Congress actually took a hold of that Clean Water Act, that I mentioned was enacted 25 years ago, and tried to modify it. A lot of things have been said about that, but the bottom line is, that was the wrong direction and it would have been damaging to the structural underpinnings of the Clean Water Program in the United States. I'm proud that the executive branch, the Clinton Administration was opposed to that, and I think we were aided by the strong environmental voice of the American people. This threat has been removed. That is not a small bit of activity that has been going on in Washington. Sometimes we forget how ideological and philosophical approaches to dealing with problems continue to be debated at the national level.

I want to talk about some specific actions over the last couple of years. One of the key components of my bosses' strategy on dealing with environmental protection as we move into the next century is the public's right to know about the condition of their environment. We are moving on a number of fronts that I would like to mention very briefly. One of the ones that I find most exciting is providing information to the public on a watershed basis throughout the entire United States, including the Great Lakes basin. Not only on the information that's available in those watersheds, but also the condition and the vulnerability of those watersheds-- and to use this in concert with the state programs of identifying impaired watersheds. We have made this information available both in publications and also on the internet.

We are working to lower the threshold for reporting for the Toxics Release Inventory and we are watching from the national level to assure that fish advisories are uniformly applied throughout the Great Lakes basin and the Center for Disease Control and EPA will take action when we think we need to make sure that that is there. The President has issued an Executive Order on children and particularly with an emphasis on environmental protection for children, one that we are all working on to implement.

I want to briefly say something about air deposition. This is where we need to get beyond the Great Lakes basin, start looking at the airshed. We have done a number of things at the national level in the U.S. government that will have a beneficial impact. One of them is the new particulate matter and ozone standards that we have proposed and we continue to fight for at the national level as we reduce those pollutants over the next decade, and further, they will be an additional benefit on air deposition to water bodies. We have finalized standards for medical and municipal waste incinerators in the last year and a half, and these will remove over 100 tons of mercury being emitted into the air in the United States, as well as significant reductions in dioxin from those major sources of dioxin. In the Superfund program we are accelerating cleanups and we continue to stand firm in places like the Fox River where we need to have that cleanup take place.

I know that the Second Great Water Bodies Report that was produced in Washington is of concern to many people in the audience, and I'd like to say that the Great Water Bodies Report clearly identified the problems that remain and that are in front of us related to air deposition of toxics and other pollutants into the waters of the United States, in particular the Great Lakes. I want to say that the Great Water Bodies Report is not the end. It is not the end of the game. We are now in the process of putting together a national strategy to tackle the problems that were identified in that report, including using authorities we have, that we haven't yet used to tackle some of those problems.

Persistent bioaccumulative toxics -- we have a multi-program effort underway to look across all the different programs at things like mercury and dioxin, the Tier I Binational Strategy List, and nonpoint sources continue to be something of great concern to us. In many respects we have done the easy part, on the Water Pollution Control Act, and now we have to get to the harder stuff. And I have to say that the serious threats still remain in front of us in that regard.

Just two weeks ago today, Vice-President Gore issued a challenge and a charge to the federal agencies to put together an action plan in the next 120 days to tackle some of these remaining problems using our existing authorities and expanding on our existing authorities, in three main areas: protecting the public from health threats, more effective control of polluted runoff, and water quality protection on watershed level. He talked specifically about reducing fish advisories, protecting beaches, new strategies and standards on polluted runoff and animal feeding operations and a new national goal to be gaining -- not losing -- gaining 100,000 acres a year of wetlands in the United States by the year 2005. So we are working very hard on this. History will show that we can continue to make progress, but more needs to be done, and we cannot rest. I think we need to also know that clean water is everybody's business. The government's here reporting on some of the things we're doing, but really it's going to require everybody to work together; these problems don't get easier, they continue to get harder. But I think if we all work together, we can make the job move forward, we can complete the job and we need to do that for our children. Thank you.

John Mills, Environment Canada

Thank you, Bob for those comments. Ladies and gentlemen, during this part of the presentation, my colleague David Ullrich and I would like to focus on those activities which the two countries undertake jointly and cooperatively in support of the Agreement. In considering our binational efforts, we are going to focus on two elements: A brief retrospective of the situation in the basin and a review of our work over the last two years. When we consider our binational initiatives, it is useful from time- to-time to consider the context within which we conduct our affairs. This context has been established over a number of years. Because this public forum occurs during the year in which we are celebrating the 25th Anniversary of the Agreement, we feel it would be appropriate to devote some time to reflect upon this 25 year context and celebrate what we feel are some of the accomplishments over that period. As well, it is an opportunity for the governments to acknowledge the absolutely essential contribution and efforts of individual citizens, scientists, academics, private and public sector organizations and institutions which have led to the progress in the Great Lakes basin. In this regard, Environment Canada and EPA have produced a commemorative document to celebrate that 25 years of effort and I would encourage you to pick up a copy of it at our booth in the display area.

There are a number of people in this room who have devoted considerable part of their working lives to the Great Lakes. There are also some who can recall the conditions in the Great Lakes which gave rise to the Agreement in 1972. Over the next two days the environmental challenges we still face will be discussed and debated. While these challenges are permitable and we may question the extent and the pace of our efforts, we have I believe, demonstrated a history of responding to challenges. A review of some of our past successes gives pause for reflection, and I believe, optimism for the future.

When we consider the last 25 years on the Great Lakes, there are inevitably different perspectives on how we would measure progress. We have chosen today to consider progress in the basin in terms of our institutions and governance, the growth of science and its application to environmental issues in the Great Lakes and beyond, public involvement, the reduction of pollution, and the improvement in environmental quality. The Great Lakes benefitted from the growth of the environmental movement, both in Canada and United States in the 1960s. During the past 25 years we have seen the formation or development of government environmental agencies, environmental policies and laws in institutions, and institutes devoted to environmental studies. Indeed I would say the signing of the Agreement itself in 1972 and its subsequent revisions and amendments are symbolic of the growth in environmental awareness and responsiveness. The Great Lakes basin has witnessed the growth and evolution of organizations devoted to the Great Lakes region -- some devoted exclusively to the environmental interests, such as Great Lakes United. While others may promote regional, economic or business interests, but contribute to the public policy development in environmental affairs, e.g. the Council of Great Lakes Industries. There are many others who are participating in this forum today. The both formal and informal networking among such groups, together with Great Lakes industries' interests in universities, in government organizations contributes to a substantial system of governance for the Great Lakes. The IJC is a significant player in that Great Lakes governance network.

The last 25 years have seen a vast improvement in our understanding of the lakes and this has occurred as a result of our investment in science. Our science has provided the basis of our understanding and action on eutrophication, exotic species such as sea lamprey, toxic substances and long-range transport of atmospheric pollution. Most recently, science is at the forefront of the debate and discussions on endocrine effects of contaminants. You've seen a number of scientific innovations in the Great Lakes basins -- the environmental sampling technology, analytical techniques and statistical analysis. Chemical analysis of archive museum samples have helped provide a retrospective picture of the historic wildlife contaminant burdens and their impacts on population ecology. The scientific effort in the basin on the impact of atmospheric deposition and long-range transport have had a significant influence on the global agenda for persistent toxic substances.

The scientific community has led discussions on the ecosystem concept and the call for its inclusion in the Great Lakes Water Quality Agreement. The ecosystem perspective provides both a philosophical framework and scientific rationale for the notion that everything in the basin is related to and affects to some degree everything else in the basin. It recognizes that no one factor was responsible for the ecological decline in the region, and that existing problems cannot be addressed within strict jurisdictional, geographic or disciplinary boundaries. There now exists in the basin a variety of government, university laboratories, research stations and institutes devoted to Great Lakes studies. Scientific conferences are held annually under the auspices of the International Association of Great Lakes Research, and research findings are published in the Journal of Great Lakes Research, established in 1975. The scientific community continues to serve us well.

Another notable advancement over the past 25 years has been the growth of public involvement on environmental issues. Increased environmental knowledge and awareness has been due in part to the tremendous increase in the coverage of environment in our education curricula and in the media. Today there are countless grassroots organizations working at the community level in the Great Lakes basin. They play a critical role for a much larger Great Lakes constituency. Public consultation and involvement have been critical to the development of many programs and activities arising in the Great Lakes Agreement. Foremost among these have been the citizen participation in the development of remedial action plans for those designated Areas of Concern. Concerned and knowledgeable citizens have played and will continue to play a key role in advancing environmental affairs within the basin.

Of course, a major measure of progress in the Great Lakes basin over the last 25 years has been the reduction in pollution -- physical pollution in the form of objectionable and nuisance materials forming scum, sludge and odor have almost been eliminated. Occurrences in magnitudes of chemical spills in the lakes have been reduced significantly. Significant investments have been made in the lakes -- some $7.6 billion to construct and upgrade municipal treatment plants. Industry has also made major investments in pollution abatement.

A major objective of the Great Lakes Water Quality Agreement has been the control of eutrophication in the lakes due to excessive nutrient loadings. Loading targets were set for phosphorus and these targets have been achieved in Lakes Superior, Huron and Michigan. Lake Erie and Ontario are at or near target lows. These targets have been achieved primarily through enhanced sewage treatment and this means that eutrophication is no longer a problem in the Great Lakes on a lakewide basis. I think a major accomplishment for binational cooperation.

In the case of Lake Erie shown here, loadings of phosphorus from municipal sources have been reduced by almost 80% despite the increase in population and municipal discharges. Algae biomass in the lakes have been reduced and water clarity improved. The extent of oxygen depletion at the bottom waters of this lake have also improved. Industrial sectors in the basin have also achieved a significant pollution reduction. For example in the pulp and paper industry, Great Lakes mills today discharge about one-eighth of the loadings of oxygen-consuming waste that they discharged in the late 1960s, despite increase in production of paper products.

Ultimately, the contribution of our institutions, our commitments to science, the countless volunteer hours expended by involved public, and the major public and private sector investment in pollution abatement must be measured in terms of improved environmental quality for all who live in the Great Lakes basin. Here again there are ample examples that substantial progress has been achieved over the 25 years and this progress reflects the combined effort of jurisdictions around the basin. We have measured improvement in open lake water quality, particularly in Lakes Erie and Ontario where substantial stress was evident. In addition, we have measured substantial declines in contaminant burdens in the basin and improvements in populations of sentinel fish and wildlife species.

Several persistent toxic substances, such as PCBs, DDT and mercury have declined in fish and wildlife by as much as 90%. The example shown here is for the double-crested cormorant. Populations of the cormorant were devastated by toxic chemicals and a number of nesting pairs in the Great Lakes basin decreased 86% between the 1950s-1970s.. Today the cormorant is more numerous than in anytime in recorded history. The main culprit as many of you are aware was DDE, a breakdown product of DDT which affect egg-formation in the female bird. DDE and PCB levels in cormorant eggs at monitoring sites have decreased by more than 80% between 1971 and 1989. Similar reductions have been recorded in several other species of Great Lakes fish and wildlife, including herring gulls, common terns, osprey and lake trout.

The reduction in contaminant burden is also evident in human population. Controls on lead and gasoline have led to measurable reductions in atmospheric deposition of lead in the Great Lakes basin and reduced lead in sediment. The example shown here is the declining environmental levels are reflected in lead levels in the blood of children. Trends in blood levels of Ontario children are compared to the level of lead in gasoline. Declining levels of contaminants such as PCB and DDT have also been measured in the breast milk of women. The example of DDT in the breast milk of Ontario women is presented here.

Our point in presenting this information is that we have made progress and there are many encouraging trends. That is not to deny that there are continuing problems. For example a preliminary analysis of our most recent data-set on pollution releases from industrial facilities within the basin indicates that in 1994 about 129,000 metric tonnes of pollutants were released. Releases to the air accounted for more than 80% of that total. There is no doubt that we have continuing challenges. Further advances in pollution abatement from both municipal and industrial facilities are required. Levels of persistent toxic substances remain unacceptably high in a number of cases. The long range transport of contaminants leaves the lakes vulnerable to the deposition of substances from the air, from sources both within and from far outside the basin. Exotic species continue to be unintentionally introduced into the lakes, with severe impacts on indigenous species. And the sensitive and reproductive nearshore area and tributaries of the Great Lakes system continue to be stressed by the influence of urbanization of land use changes. This is particularly evident in the lower lakes.

We have met challenges in the past and achieved progress. My colleague Dave Ullrich will now outline some of the highlights of binational activities which have occurred over the last two years that responds in part to some of those continuing challenges.

David Ullrich, U.S. EPA

Thank you very much, John. Commissioners, ladies and gentlemen. It is indeed an honor for me to be here today to join in the efforts to protect this magnificent resource that we have and share in the Great Lakes. I must say, I'm particularly impressed to see the young people in the audience, it's a real testament to your commitment that you are here with us on a Saturday morning, but after all I think you probably have an even greater stake in all of this than those of us who have been at it for awhile. So welcome to everyone.

My portion of the presentation is to give highlights of the binational effort over the past several years. This period saw some notable accomplishments which have helped advance the restoration of the Great Lakes basin ecosystem. I will also discuss some of the priorities that the Parties see ahead over the next two years. A major priority is the control of persistent toxic substances. While controls are the domestic responsibilities of the Great Lakes jurisdictions the Parties continue to cooperate on research, monitoring and surveillance, problem definition and priority setting.

To advance the efforts of the Parties and in part to respond to the advice and recommendations of the Commission, the Minister for Environment Canada and the Administrator of the U.S. Environmental Protection Agency signed the **Great Lakes Binational Toxic Strategy** on April 7 of this year [1997] in Washington. The strategy reinforces some of our existing mechanisms by establishing a more collaborative and systematic procedure for responding to persistent toxic substances. This includes the assembly and assessment of information on sources, the review of current controls, the identification of further control options, and of course the implementation of actions which would advance us towards the virtual elimination of toxics. This strategy also sets quantitative milestones for PCBs, dioxins, furans and mercury. The success of the strategy will depend on cooperation among federal agencies, provincial and state governments, tribes and First Nations working together with public and private partners to achieve real progress towards the goal of virtual elimination.

The Parties continued with the second **State of the Lakes Ecosystem Conference**, last November in Windsor, Ontario. The scientific conference focused on the state of the nearshore system, that area of the lakes between land-based human activity and the open waters of the Great Lakes. The report from this conference was released in September of this year and copies are available from Environment Canada, U.S. EPA and in the various Great Lakes websites. The next State of the Lakes Conference is scheduled to be held in October of 1998 in Buffalo, New York. This conference will focus on the development of environmental and socioeconomic indicators for the Great Lakes, and review progress on protecting environmentally important nearshore areas. The Parties will continue to solicit and respond to advice on the State of the Lakes Reporting and we would like to acknowledge the contributions of the Commission in this regard.

The Parties would also refer the Commission to the **Great Lakes-St. Lawrence Health Conference** held in May of this year in Montreal, Quebec. This conference brought together 280 participants to consider the effects of the environment on human health. The conference was hosted by Health Canada, the U.S. Agency for Toxic Substances and Disease Registry and the Quebec Ministry of Health and Social Services. The conference provided more than 130 presentations and posters, and two roundtables on the latest scientific knowledge on the public health implications of endocrine disruptors and neurobehavioral effects. Some observations offered at the conference were -- exposure levels declined in the 1970s and 1980s, however, the body burdens still concern us. Most at risk are fetuses, nursing infants, subsistence and sport-fishers, and older adults. These populations have high rates of body burdens compared to the general population. Also, there is much evidence of subtle but profound effects of contaminants in the findings of several epidemiological studies. This conference provided a very useful forum to broach the issue of environment and human health. Proceedings of the conference will be published next year in a supplement of Environmental Research.

The Parties continued their work on the **Integrated Atmospheric Deposition Network**. In a broader context the Commission will also be aware of the initiatives being pursued on transboundary air quality. Environment Canada minister and U.S. EPA Administrator announced in April this year a program to develop a joint plan of action for addressing transboundary air pollution. As well, discussions have been held on the possible development of annexes to the **Canada-US. Air Quality Agreement** to deal with smog and particulate matter in air.

International efforts are continuing on the development of the Lake Superior Binational Program. Lakewide Management Plans and Remedial Action Plans for the upper lakes connecting channels -- that is the Detroit, St. Clair and St. Marys Rivers. All of this work entails considerable effort to engage stakeholders, reach consensus on problem definition, identify the environmental objectives to be obtained and most importantly, implement restorative and protective measures. Lakewide activities are well underway on three of the Great Lakes --Lake Superior, Lake Erie and Lake Ontario.

The **Lake Superior Binational Program** as part of its effort to track and report on activities has prepared a five-year progress report which is available this weekend. The report highlights actions and results since 1992 in the areas of pollution prevention, special designations, and controls and regulations.

LaMP Stage I problem definitions have been completed for Lake Superior and Ontario with the Lake Erie Stage I document expected in 1998. The Stage II load reductions and ecosystem targets document has been drafted for Lake Superior and public comments received. The Stage II document for Lake Ontario is expected in the winter of 1999.

Binational **RAPs** are proceeding with some difficulty. We are aware of the Commission's interest in the Detroit River RAP and the Parties have recently received the status assessment report from the Commission. The perspectives and recommendation of the Commission will be reviewed. The Commission may be aware that Environment Canada Minister, Stewart met with Governor Engler of Michigan recently to discuss activities on the Detroit River. The Parties will maintain efforts towards the successful remediation of the Detroit River.

1997 marked the 10th anniversary of the **Niagara River Declaration of Intent**. This declaration by the four Canadian and U.S. environmental agencies involved commits to achieving reductions in the loading of toxics to the river and the monitoring and reporting of results under the **Niagara River Toxics Management Plan**. Continuing improvements are being documented by the jurisdictions including reported reductions in loadings of 85% from municipal and industrial facilities by New York State. Development in implementation of hazardous waste site cleanup plans by New York State. 99% reduction in priority pollutants by Ontario sources and measured improvements in water quality and biomonitors.

In April of 1996, the **Great Lakes Agricultural Summit** was held in East Lansing, Michigan. This effort was led by the Great Lakes Commission with team support from Michigan State University, Agriculture and Agri-Food Canada, the World Wildlife Fund and the University of Guelph. Financial support was provided by the Great Lakes Protection Fund. The summit attracted wide participation. A resource document for the summit was produced and a subsequent Action Agenda for Great Lakes Basin Agriculture was developed and is available from the Great Lakes Commission. The Parties views initiatives such as the summit as important vehicles to engage Great Lakes sectoral interests. The shared experiences help advance understanding in the basin and bring forward opportunities for collaboration.

A similar effort was announced in April of this year by Environment Canada in conjunction with the **11th International Great Lakes-St. Lawrence Mayors Conference** in Toledo, Ohio. A municipal water quality network has been established to bring together regional waterfront municipalities in the U.S. and Canada. The network will encourage the sharing of information about drinking water systems and wastewater treatment.

This summarizes some of the highlights over the last two years. **In the next two years,** binational priorities anticipated by the Parties are: the implementation of the Binational Toxics Strategy; a six year review of the Integrated Atmospheric Deposition Network, a component of the Great Lakes International Surveillance Plan; the next stage of the State of the Lakes Ecosystem Conference will be held in October, 1998 and the report delivered in 1999. Also there will be aspects of governance on the agenda. The Parties are required to review the operation and effectiveness of the Great Lakes Water Quality Agreement after the next Biennial Report of the IJC. In addition, the Parties will be considering the functioning of its Binational Executive Committee at upcoming meetings. This committee, composed of Canadian and U.S. government agency representatives oversees the Binational Great Lakes Program.

Commissioners, this concludes the Binational Program component of the governments' presentation. In summary, the Parties contend that progress is being achieved on the Great Lakes, that progress is a reflection of the combined efforts of jurisdictions around the lakes together with public and private sector inputs, and that we still have substantial challenges before us. With the continued good will and hard work of all interests we will believe these challenges will be met as they have been met in the past. With your concurrence, Commissioners I would suggest a short break before resuming with the presentations on the U.S. and Canadian domestic activities.

Bob Perciasepe, U.S. EPA

First of all I would like to thank the IJC Commissioners for providing the United States an opportunity to talk about progress we have made in cleaning up the Great Lakes. With me here today is our Administrator of Region II of U.S. EPA, Jeanne Fox and she has representatives from the states of New York and Pennsylvania as well. Also here in the audience today are representatives of the six states that border the U.S. side of the Great Lakes -- Minnesota, Michigan, Wisconsin, Illinois, Indiana and Ohio --

I know for sure Tracy Mehan from Michigan and Bruce Baker from Wisconsin; there may be others as well.

Twenty-five years ago the people of the United States and Canada recognized the importance of a healthy Great Lakes to the well-being of our citizens and economies. The Great Lakes Water Quality Agreement joined our two nations in the effort to improve the health of this magnificent resource. The Great Lakes basin ecosystem is one of the most important natural resources in North America having about 18% of the world's freshwater and it has global significance. The lakes are a wellspring of biological abundance and diversity for all of North America. They have over 10,000 miles of shoreline across eight of the United States. as well as two Canadian provinces. The people who live in or visit the Great Lakes region enjoy the wealth of natural beauty and recreational opportunities and appreciate special meaning associated with the Great Lakes. For me it is both an honor and a daunting responsibility to be part of the challenge to protect and restore the Great Lakes basin ecosystem.

Looking back 25 years, when this landmark agreement was signed, there were reports that Lake Erie was dead and the Great Lakes were a declining ecosystem. Environmental effects from industrial and human development of the basin were devastating. Despite their size we have come to learn that the Great Lakes though vast, are a sensitive ecosystem. Never before had an ecosystem the size of the Great Lakes been so threatened. The evidence was mounting and the effects were obvious. Floating debris on the Cuyahoga River flowing through Cleveland caught fire. Many of the Great Lakes rivers and tributaries did not support aquatic life because the water and underlying sediment were too polluted from cities, industries and farms. Fisheries were closed and fish advisories were issued due to mercury, PCBs, DDT and other toxic pollutants. Sport fish around the lakes had been decimated by the sea lamprey. Birds, including the bald eagle which is our national symbol were in decline due to the pervasive use of toxic chemicals, especially DDT. Beach closing were common in many recreational spots on the lakes causing public alarm. Air pollution was a serious problem, harming people's health and depositing toxic pollutants in the lakes. Unfortunately, the vast open waters of the lakes and extensive miles of shoreline made the Great Lakes particularly vulnerable to this pollution.

There may be people in this room who had a hand in drafting the original Great Lakes Water Quality Agreement in those troubled times. To them I say thank you for having the hope, courage and the vision for a better future. At a time when many believe the Great Lakes to be hopelessly damaged, you saw an opportunity for recovery and formed a framework to achieve that goal. The environment in which our children are growing up is cleaner and healthier as a result, and again I thank each and every one of you.

So where are we now in cleaning up the Great Lakes? What progress has been made? What is our promise for the future? Together we have made tremendous progress in restoring the health of the Great Lakes ecosystem over the years. This progress has been made by a large and diverse number of federal, state and local partners who had a vision for the future of the lakes. Much of the early progress was made through the implementation of federal and state regulatory programs. The public and citizens groups have also done their part to clean up and protect the Great Lakes. Industries also have made great strides in developing innovative solutions to pollution problems in the lakes and have realized that being clean and green company not only helps the environment but is good for the business bottom line as well. I would add that the tribal perspective has been tremendously beneficial for us in the U.S. as well, in working on the Great Lakes.

Yet at the time of the 1987 Amendment to the Agreement it was recognized that an ecosystem approach was necessary for protecting and restoring the chemical, physical and biological integrity of the Great Lakes ecosystem. Implementing the ecosystem approach has been our organizing principle. The benefits of this approach have been enormous. We are working to solve environmental problems in a holistic and integrated way using more creative and efficient solutions. Instead of looking at one piece of the puzzle with our partners we are addressing the health of the Great Lakes as a whole and each Great Lake as an essential part. We recognize that a diverse set of institutions must come together to tackle the problems confronting us. We have also made tremendous strides in understanding the complex nature of these lakes and their watersheds. Without this knowledge we would have been shooting in the dark to find strategies for recovery. Because of this we have been able to successfully design effective remedies for recovery of the Great Lakes.

We have three main goals in the United States to guide us in our quest for a clean and healthy Great Lakes ecosystem. These have been the cornerstones of Great Lakes environmental management since the early 1990s and reflect an ecosystem approach. 1) reduce and eliminate toxic inputs to the Great Lakes basin; 2) protect and restore vital habitats; and 3) protect human and biological health.

The first goal is reducing and eliminating toxic inputs to the Great Lakes basin. The toxic problem in the Great Lakes has long been considered the signature crisis of the Great Lakes ecosystem. I am happy to report that on a number of fronts there has been significant progress in addressing toxic inputs to the Great Lakes. Our emphasis has been to prevent and reduce releases of toxic pollutants and to remedy past contamination, centering around chemicals that are commonly referred to as persistent toxic substances, especially those which bioaccumulate. Many of these toxic substances come from sources far away from the Great Lakes. The good news is that from their highest levels in the late 1970s and early 1980s there has been an order of magnitude drop in the levels of many toxic chemicals found in the Great Lakes. For example, PCBs and DDT concentrations in lake trout in Lake Michigan have dropped appreciably. Air emissions, including those of toxics release inventory chemicals have been on a downward trend. This trend is expected to continue as we move into the next century due to the further implementation of the Clean Air Act.

We owe this encouraging progress to a full range of programs that have been put into place over the past two decades, including pollution prevention and environmentally protective standards. Much of the early early U.S. progress under the Agreements stemmed directly from the federal and state regulatory programs. The **Clean Water Act** has been the primary tool EPA and the states have used to clean up the Great Lakes. In 1991, Congress passed the **Great Lakes Critical Program Act** which required the agency and its state partners to develop more protective and uniform standards, criteria and procedures to control industrial discharges. We are proud of the precedent setting development of the **Great Lakes Water Quality Guidance** and the progress that has been made. To date, Indiana, Michigan, Ohio and Wisconsin have completed the adoption process for the guidance. The process is underway in the all of the other Great Lakes states as well. When fully implemented, an annual reduction of over one million pounds of contaminants entering the Great Lakes basin is expected.

We have also put strong emphasis on pollution prevention everywhere in the basin as a fundamental building block of our environmental ethic. Known as the country's industrial heartland the Great Lakes basin is a truly fitting place to use pollution prevention as a tool to solve environmental problems. We have recognized that pollution prevention is the preferred approach to solving the toxics problem. Over the last decade, we have formed many partnerships and invested millions of dollars which has led to the creation of one of the strongest pollution prevention efforts in the country.

Other encouraging news is that pollution prevention ethic is strongly supported. There is evidence that we as a society are using fewer hazardous substances and that industry is both using and emitting smaller amounts of these chemicals, even as the population increases. U.S. EPA and its partners have placed a high importance on mercury over the past several years. The Great Lakes states have been leaders in developing innovative approaches to mercury reduction.

For example, Michigan formed a **Mercury Pollution Prevention Task Force** to work with industry. One of their notable successes, an agreement with the auto industry to phase out the use of mercury switches, will lead to a use reduction of nearly 10 tons per year. Minnesota has required relay manufacturers to collect and recycle used mercury relays, and a collection and recycling program for mercury thermostats is set to begin throughout Region V shortly. Several states have undertaken outreach programs to hospitals resulting in reductions in the use of mercury containing medical equipment and improved waste handling procedures. Important local efforts are also underway, including significant mercury pretreatment programs at the Detroit and Duluth Sanitary districts and mercury reduction initiatives in Milwaukee and Green Bay, Wisconsin. Because of these efforts and as a result of a ban on mercury in paints and a phaseout of mercury in pesticides, mercury use has fallen significantly; 82% between 1980 and 1995. Mercury emissions and most importantly the deposition of mercury into the Great Lakes basin has also dropped. Measurement of mercury in sediments in Minnesota lakes indicate that after peaking in the 1970s there has been a sharp decline as a result of lower regional emissions.

In addition to prevention we have also put an emphasis on tackling a very difficult environmental problem in the Great Lakes -- this is the **problem of contaminated sediments**. This is the legacy of many years of discharging to our rivers. In addition to adverse environmental effects contaminated sediment in Great Lakes harbors can also have significant economic impacts because in some places navigational dredging has been delayed. Great Lakes cities want to clean up their waterfronts and revitalize them for both recreational and economic reasons and to improve the overall quality of life.

Contaminated sediments are a barrier to achieving this revitalization in many Great Lakes locations. Cycling of contaminants from bottom sediments is a leading source of contamination of the Great Lakes foodchain. The most pronounced effects are seen locally in the Areas of Concern in the U.S. However, each lake is also affected through resuspension of contaminants moving out into the lake. To date a majority of U.S. Areas of Concern have been assessed to help define the nature and extent of the problem. The Great Lakes Office's sampling boat, the Mud Puppy has been providing technical assistance to state and local communities and has initiated or completed 19 such assessments over the past four years.

Although there is more assessment work to be done, we are placing a continuing emphasis on finding these hotspots and cleaning them up. For example, at Waukegan Harbor approximately one million pounds of PCBs have been removed. In Manistique, Michigan approximately 60,000 cubic yards of PCB contaminated sediments have been removed to date with many more scheduled for the future. At the Ford site, in the River Raisin Area of Concern, 28,000 cubic yards of PCB-contaminated sediments were removed over this past summer.

We are also looking to form new innovative partnerships at the local level to help solve the contaminated sediment problem. In the Ashtabula River Area of Concern a unique partnership has been formed to try to help solve these problems.

Finally in the toxics area, **having good scientific and environmental information** upon which to make decisions, engage progress is essential. We have initiated one of the largest and most detailed investigations of its kind -- the **Lake Michigan Mass Balance Study** -- which will put information into the hands of decision-makers to determine the relative contributions from the atmosphere, tributaries, and sediments. EPA has also issued two **Great Waters reports** required by the Clean Air Act.

The second major goal is protecting and restoring vital habitats. One of the benefits of the ecosystem approach is that we look at places comprehensively and take into account not only toxics and human health issues but also look at our native ecosystems including forests, rivers, wetlands, savannahs and prairies which provide critical habitat for a diversity of plant and animal life. In order to protect and restore important habitats of the basin, we are working with our partners, U.S. Fish and Wildlife Services has the lead role in this area. U.S. Department of Agriculture, the Army Corps of Engineers as well as a variety of state, tribal, non-profit and citizen organizations all have critical roles and are making important contributions.

To begin to put these pieces together the Nature Conservancy with support of U.S. EPA, produced a landmark study which reported that the Great Lakes basin has over 130 globally rare or threatened plant or animal species. A few examples of the many initiatives undertaken in this area are the **Metzgers Marsh Restoration Project in Ohio** is an example of multiple partners working cooperatively to restore a 900 acre coastal marsh through the rebuilding of a lakefront dyke and installation of water control structure. The **Chicago Wilderness Project** is a partnership of over 35 different members joining together to protect an area that includes portions of Wisconsin, Illinois and Indiana. A project involving over 80 local businesses in the **Les Chenaux Channels** located in northern Lake Huron has begun.

The third major goal is protecting human and biological health. This goal is closely linked to our first two goals and it reflects an emphasis on the people and living organisms within the Great Lakes basin that we seek to protect. There are encouraging developments in this area as well. As a personal example, my office on the 19th floor of a building in downtown Chicago often provides me an opportunity to look out and see the wildlife in downtown Chicago. I've had the good fortune recently of spotting a couple of peregrine falcons, who utilize a large concrete structure near my office -- it happens to be a federal prison -- but they find that a very good location to do their hunting in the downtown Chicago area. I'm very inspired that even in some of our harshest environments, most heavily developed environments, there are symptoms of hope and recovery.

There are other signs that we are making progress in this area. For the first time since the days of widespread DDT use, eagles along the shores of the Great Lakes are beginning to fledge young eaglets. The Great Lakes eaglets still lag behind their inland counterparts in reproductive success, but this is a sign that things are improving.

Lake Erie went from an ecological wasteland to the walleye capital of the world since the inception of the Great Lakes Water Quality Agreement. Sport anglers in Ohio last year caught 2.6 million walleye from Lake Erie (referring to the slide -- This is one of our employees on his weekend duties for EPA). Lake trout populations after almost 30 years have again become self-sustaining in offshore areas of Lake Superior. Stocking has been discontinued in some areas and improvements are expected to continue and may occur soon in other lakes.

Mayflies the favorite food of fish disappeared from Green Bay in 1939 and from western Lake Erie in the early 1950s. They are coming back in dramatic numbers.

Despite this progress there are other threats to the Great Lakes ecosystem that continue to plague and that will be hard to solve. For example, exotic species have had a huge impact on the Great Lakes ecosystem and remain a serious challenge. Early invaders such as the lamprey and alewife continue to impact Great Lakes fisheries. More recent exotics including the zebra mussel and spiny water flea are also causing ecological as well as environmental harm.

The Great Lakes are a vast natural resource that supports a variety of uses. One of the most important being, recreation. The key questions citizens mostly have is whether they can use the lakes as a resource and enjoy them in a safe, clean and healthy way. We have been tracking the beach closings in certain areas over the years and are pleased to report that there is a downward trend in this area.

Of paramount importance is the protection of human health. One of the remaining issues facing us is not being able to eat a wide variety of Great Lakes fish, due to the presence of toxic contaminants in the Great Lakes basin. Scientific studies have indicated that potential human health and developmental effects may be experienced by people that have or are consuming Great Lakes fish as part of their diet.

Next I would like to talk a little bit about partnerships and approaches to solving these environmental problems. They are very important. This is one of the most important aspects of cleaning up and protecting the Great Lakes, because it reflects the way we work with partners as we go about achieving our goals. An alliance of federal, state, tribal and other non-governmental agencies cooperate and manage a nested structure of activities as a partnership to ensure that we meet the goals of the Agreement. This nested structure parallels the natural boundaries found in the Great Lakes ecosystem -- from local landscapes to smaller watersheds, to individual lake basins, building to the entire basin and beyond.

The foundation and basic organizing design for place-based approach in the Great Lakes resides in geographically focused efforts such as the **Remedial Action Plans** [RAPs] and **Lakewide Management Management Plans** [LaMPs]. These are developed and implemented through an ecosystem, multimedia-based approach for assessing impairments and restoring beneficial uses. Each of the areas we are working in will have a unique blend of circumstances and solutions tailored to issues that must be be addressed. This is sometimes referred to as community-based environmental protection which is an environmental problem-solving approach that takes the needs, desires and inputs of the community into account and includes working directly with those communities to carry out the solutions. On a larger scale, LaMPs are being developed to address and manage a whole lake, from an ecosystem perspective, which will lead to the elimination of impairments to beneficial uses. The LaMP process involves a large number of binational, federal, state, provincial, tribal and non-governmental agencies coming together to integrate their vision for the lake. These LaMPs are serving as platforms to address the broad range of environmental issues facing the lake. I do want to point out that in my earlier remarks, not having mentioned Lake Michigan is not a reflection that good work is not happening there -- because a great deal is -- it was just more of a national effort, rather than a binational effort.

We must continue to lay the groundwork for a cleaner and healthier Great Lakes in the future. As we stand on the brink of a new century, we face environmental challenges that are much different than those in the 1970s. The social and economic context in which these problems are occurring has changed as well. We must continue our work in a number of important areas, even as we see the progress being made. Many issues are facing us and there is a need to press on and rise to new challenges, so that future generations will be able to see that the Great Lakes are a much better place because of the work of the previous generation.

The issues that we will have to deal with are complex and varied. We have major population centers that are faced with urban sprawl and resulting loss of habitat. Toxic chemicals, continue to be a very serious concern. The global issue of climate change is going to be a major issue.

And we have to deal with water quantity issues in addition to those water quality issues. And there are new mining and exploration threats. I am confident that even though more work needs to be done, we are in a much better position today to solve these complex problems. An integrated approach based on natural and human communities is the best way to ensure that our goals are reached for a cleaner and healthier Great Lakes. We will continue to be responsive and effective in dealing with environmental problems confronting us on a regional, national and international scale. Today, I call on each of you from the Great Lakes environmental community to help continue this partnership, to be responsive and effective in dealing with the continuing problems we face, as well, as rising to the challenge to solve the new ones. Thank you very much for your time, patience and attention. At this point, I would like to turn it over to Jeanne Fox of Region II.

Jeanne Fox, U.S. EPA, Region II.

Thank you. I'm not having any slides so if you turn the lights up a little bit I can see who I'm talking about. I'm Jeanne Fox and I'm the Regional Administrator from Region II for EPA, which includes New

York State. I will be speaking on behalf of my region as well as the New York State Department of Environmental Conservation. I would first like to thank the Commission for inviting me to participate in today's forum, as well as its Anniversary celebration.

And the truth is, we *do* have a lot to celebrate. Today the Great Lakes are healthier and have a brighter future than at any other time in the last 25 years. And that's because of the efforts of a lot of people who are in this room, as well as a number of others. Before I begin, I would like to introduce Jerry Mikol in the front, who's director of New York DEC's Region IX and Kelly Burch behind him, who is the Chief Officer of the Great Lakes for the Pennsylvania DEP. I expect that later on, I'll be asking them to help out with questions from the audience, and the two of them together know almost everything about the State's efforts in Pennsylvania and New York, to help clean up the Great Lakes.

Since Dave covered the efforts about the upper Great Lakes, I'll focus on Lake Erie, Niagara River, Lake Ontario and the St. Lawrence River. As Dave said, things look pretty bad for the Great Lakes in the 1970s. Lake Erie was considered to be dying; choked by too much phosphorus. And Lake Ontario was widely believed to be heading in the same direction. Against this bleak background Congress and the President created the Federal Water Pollution Control Act of 1972, which was spoken about by Bob Perciasepe. And thanks to this Act, the discharge of pollutants from municipal and industrial facilities is now effectively controlled through permits under the National Pollution Discharge Elimination System [NPDES]. In the New York portion of the Great Lakes basin, we have widespread compliance with those permits. Just one example of the effectiveness of the NPDES Program is the Niagara River. Where the input of toxics from point sources have been reduced by over 85% since 1981. Our success in controlling discharges from municipal wastewater treatment plants is due in large part to the major investment that we have made in infrastructure.

Since 1972, EPA passing the money through the State of New York, has given municipalities in the Great Lakes basin almost $1.9-billion in grants and has helped capitalize the state program that made $500-million low interest loans available. One of the significant successes of our investment was the ability to reduce the phosphorus loadings in the lakes. This helped New York's Phosphorus Load Reduction Program reduce the levels in Lake Ontario by more than half. But we must go beyond just controlling pollution from point sources; we all know that. We must also address nonpoint source pollution which obviously includes such things as runoff from agricultural fields. In the Clean Sweep Program EPA has worked with Erie County, in New York to help farmers in Erie and 14 other counties get rid of the unwanted pesticides in the environment, and use it in a safer manner. To date we have been able to properly dispose of over 120,000 pounds of agricultural hazardous products in the Niagara River and the Lake Ontario basin.

We have also taken major steps to reduce the runoff of toxic chemicals from the hazardous waste sites. Again, using the Niagara River as an example. In 1989, EPA and New York State identified 26 U.S. sites that were the biggest contributors of toxic chemicals into the river. And we put them on an expeditive remediation schedule. Remedial construction is now complete at seven of those sites and is well underway at 11 others. We estimate the toxic inputs to the river from these sites will be cut by over 80% by the end of this year. We also have to address pollutants that settle out of the atmosphere, that's been spoken about. EPA will be using Section 112-M of the Clean Air Act to ensure that atmospheric emissions of pollutants do not cause harm to the public health, or to the environment in waters such as the Great Lakes.

In addition to cutting the load of the pollutants to the lakes, we must also restore and protect the fish and wildlife populations and their habitats. That is why your Great Lakes National Program Office provides funding for Berry Beach and wetlands habitat restoration on Lake Ontario's shoreline; and creation of wildlife and nesting habitat at Deer Creek Marsh at the far eastern end of Lake Ontario. And that is why DEC is working in partnership with a coalition of industrial and citizen groups to return river otters to central and western New York State. A total of 88 river otters have been introduced to the Lake Ontario basin so far.

The continuation of all these programs is essential to our progress in the Great Lakes. However, the goal of restoring and protecting the integrity of the Great Lakes will only be accomplished through the formation of partnerships. For example, EPA and DEC are working with Environment Canada and the Ontario Ministry of Environment and Energy to develop a Lakewide Management Plan for Lake Ontario. The four parties are in a process of finalizing the LaMP Stage 1 document which lays out the environmental problems of the lake and what the four parties will do to solve these problems. The four parties are also working together on the Niagara River Toxic Management Plan. Initiated in 1987, the plan identified 18 persistent toxic chemicals and set out our actions to reduce them. With financial assistance provided by EPA, DEC is working with community-based groups on Remedial Action Plans. Stage 2 Remedial Action Plans, which identify specific actions are complete now for all six designated Areas of Concern in New York. We are now in the process of implementing the recommendations in these plans.

It is due to the success of the programs that I've mentioned, and many others, as well as the success of our cooperative efforts that we have seen dramatic and measurable improvements in the Great Lakes basin. For example, there's been reductions in the level of toxics found in the water, fish and sediment in the Niagara River. Sediment cores taken in 1995 from Lake Ontario, at the mouth of the Niagara River, show a dramatic decrease in PCBs and a host of other toxic chemicals. These reduced levels are a reflection of the steadily decreasing loads of these chemicals from the Niagara River over time. In Lake Ontario, the herring gull populations are fully recovered after having had reproductive problems because of the toxic chemicals such as DDTs and PCBs.

But despite all of the progress that we have made, we still have a way to go; the job is far from done. EPA and DEC will continue to work together to implement and improve our programs for managing point and non-point source pollution, for cleaning up the Superfund sites, and in dealing with atmospheric sources of pollution. We will continue to work with our partners to restore and protect fish and wildlife populations and their habitats. New York State will implement its Clean Water-Clean Air Bond Act which is a $1.75-billion Bond Act passed this last year by New York voters. $25-million was specifically targeted for projects supporting the Great Lakes Water Quality Agreement. And monies from the bond acts total over $150-million for other projects in the basin in New York State.

EPA and DEC will continue to work together to implement the requirements of the Great Lakes Water Quality Guidance in New York. We will also continue our commitment to our binational efforts, the Niagara River Toxic Management Plan and the Lake Ontario LaMP. We will seek to work even more effectively with our federal, state and local partners to restore and protect the Great Lakes. EPA and DEC commit to continuing and improving our involvement with the public. The public is the essential link to the success of our efforts in all of these programs. We will continue our commitment to hold a public meeting twice a year, to report on our progress on the Niagara River Toxics Management Plan and continue our annual meetings for the Lake Ontario Coordination Committee. We, along with our Canadian counterparts, are also establishing a lakewide advisory network for Lake Ontario to increase public understanding and involvement in the LaMP. EPA is also working together with DEC to develop better ways to inform the public of the quality of the water across the state in more meaningful and understandable terms, by developing environmental indicators.

In conclusion, I am encouraged at the number of members of the general public and of the young people here who are participating in today and tomorrow's event. I take this as a sign of the public's ongoing concern about the Great Lakes and their willingness to continue to help us in our work. The author, Gunter Gloss once said, "The job of a citizen is to keep their mouth open." I believe the job of we in government, is to keep our ears open.

Now I would like to introduce our next speaker. EPA Region II has a long standing government-to-government relationship with the individual Indian nations that have territory within the regions boundaries. More recently we've been working with the Haudenosaunee Environmental Task Force, which is composed of delegates from each of the Haudenosaunee nations. The task force is committed to identifying environmental problems that confront the Haudenosaunee and to find solutions to these problems. The task force working on its own initiative prepared a very impressive report entitled, "The Haudenosaunee Environmental Restoration Strategy." Building on that effort, EPA Region II and DEC are now working with the task force on how we can work together to address the environmental problems that confront us all. In the spirit of that partnership I'm very pleased to introduce the executive director for one month now, of the task force, Jim Ransom, who will talk to you directly. Thank you.

Jim Ransom, Haudenosaunee Environmental Task Force

Good morning. My name is Jim Ransom, I'm a member of the Wolf Clan in the Mohawk Nation. I would like to send greetings and thanks to the Tuscarora Nation for allowing me to speak in their territory. I also want to send greetings and thanks to Jeanne Fox and the U.S. Environmental Protection Agency for providing me with this opportunity to speak. And finally, I would like to send greetings and thanks to the Commissioners for convening this gathering and listening to the people speak for the next two days.

The Haudenosaunee Confederacy was created over 500 years ago and is one of the oldest governments in North America. It was created by five nations: the Mohawks, Oneidas, Onondagas, Cayugas and Senecas. In the early 1700s, The Tuscaroras became the sixth nation of the confederacy. At their peak the Haudenosaunee were one of the most influential people in North America. The circle of influence of the confederacy covered an area from what is now New England to the Illinois region, and from the Ottawa River to Chesapeake Bay.

The strength of the confederacy in influencing such a vast region, did not come from force alone. Instead it was ... in being statesmen, in promoting peace, and being prepared to enforce laws to maintain that peace. Thirteen colonies recognized the strength of the confederacy and used it as a model in becoming the United States of America. In 1987, the United States Congress passed a resolution recognizing the contributions of the confederacy to the U.S. Constitution. The Haudenusaunee Confederacy exists today and its Grand Council continues to meet at the Onondaga Nation near Syracuse, New York.

In 1992, the United Nations Earth Summit in Rio de Janeiro, Brazil, the United Nations drafted Agenda 21, Chapter 26 to recognize and strengthen the role of indigenous peoples in their communities around the world. The Haudenusaunee who presented at that summit, and with the support of the United Nations, developed a comprehensive plan to protect the natural world using our traditional knowledge. The Haudenusaunee Environmental Task Force was created and sanctioned by the Grand Council of the Confederacy to develop this plan.

In July 1995, we presented the document that Jeanne mentioned, the Haudenosaunee Environmental Restoration on an Indigenous Strategy for Human Sustainability, to the United Nations at the Summit of Elders. It is the among the most comprehensive of responses to Agenda 21, Chapter 26. Since this summit, much of our work has focused on implementing the strategies outlined in the restoration plan. We are helping our communities to conserve, preserve, protect and restore our environmental, natural and cultural resources.

However, we recognize that in order to be successful, we must form partnerships with other entities who have a common interest in protecting the natural world. While, we as a peoples have an inherent respect for the natural world, it is not enough, when you are dealing with PCBs, heavy metals and the other toxic contaminants of the Great Lakes basin. We need to combine our collective knowledge of the natural world with today's science. We have achieved great progress in creating a full partnership with the U.S. Environmental Protection Agency, consistent with the intent of Agenda 21, Chapter 26. We are cooperatively working together to develop environmental agreements on a community level, nation level and confederacy level. And we look forward to creating partnerships with other entities such as Environment Canada, the provinces in Canada, the states in the United States, and non-governmental organizations, and others. We understand that only by working together can we ensure a Seventh generation of all peoples.

We would like to recognize and acknowledge the efforts of the International Joint Commission in giving indigenous peoples a voice. Henry Lickers who is a Seneca and many people here know him, is a member of the Science Advisory Board for the IJC. Katsi Cook, a Mohawk and a Mohawk midwife was a former member of the IJC's Workgroup on Ecosystem Health. I also want to thank Commissioner Béland for meeting with the Haudenosaunee Environmental Task Force, earlier this year. All of these activities represent a good start by the IJC for fulfilling the intent of Agenda 21, Chapter 26. Despite these accomplishments, there is still much that needs to happen.

I would like to share three recommendations with the Commission: (1) The International Joint Commission should appoint Indigenous Commissioners to the Commission. For the IJC, the sharing of our knowledge and understanding of the natural world will benefit its work. For the governments of Canada and the United States, they will be able to show the world their commitment to the implementation of the Agenda 21, Chapter 26. The involvement and increased participation of Indigenous peoples on the Commission will strengthen and empower ourselves and our communities; (2) I understand half an hour of the session this weekend will be dedicated to Native issues. And I would like to recommend that all future biennial meetings of the International Joint Commission designate at least one half hour of the agenda to Native issues. I would like the members of the Haudenosaunee Confederacy, Indigenous communities from throughout the Great Lakes basin should be treated with respect and dignity. Recognition of the importance of Indigenous people to the Great Lakes basin will accomplish that goal. This designated time period will help to ensure that Indigenous peoples fully participate in future meetings of the IJC; (3) Indigenous people should be appointed to all of the boards and committees of the International Joint Commission. Our knowledge and relationship with the natural world will benefit these boards and committees.

Again, I would like to thank Jeanne Fox for granting me the time to address this gathering this morning. And I would like to thank the Commissioners for listening. We look forward to improving the relationship between Indigenous peoples, the IJC and others throughout the Great Lakes basin.

John Mills, Environment Canada

Ladies and gentlemen, I would like to now, turn our attention to the Canadian domestic program. Before I do, and I'm going to ask my colleague Ivy Wile to join me at the other podium. But before we get into that, I just want to pick up on a point that David made in his comments regarding the young people here, and I think I just want to echo those comments. There are a group of students from Toronto here that are going to be writing a report on what they see and what they feel about what is going on here. And I for one, look forward to reading that report, with a great deal of interest.

The Canadian domestic program is delivered jointly by the governments of Canada and Ontario, in concert with our numerous partners through the Canada-Ontario Agreement [COA]. It is actually COA that is the principal mechanism by which Canada maintains and meets its commitments under the Canada-U.S. Great Lakes Water Quality Agreement. COA enables Canada and Ontario to work closely together, in a cooperative effort of seven federal departments and four provincial ministries. This slide identifies the federal and provincial signatories to COA.

Before getting into the presentation, I would like to take a minute to introduce you to the representatives of the departments and ministries who are here today. Maybe we could just turn the lights up for a second and people could recognize those representatives. Andy Gilman and Sophie de Villers from Health Canada, John Cooley from the Department of Fisheries and Oceans; Frank Marks from Agriculture and Agri-Food Canada; Chuck Pautler, Gail Krantzberg and Ian Smith from the Ministry of Environment from Ontario; Len Senyshyn from the Ministry of Agriculture Food and Rural Affairs; and from Environment Canada, Vic Shantora, John Carey, Ron Shimizu, Simon Llewellyn and Mike Goffin. The reason I've introduced these people is that a little later on, Ivy and I will be asking them to help us respond to your questions and concerns, at the end of the governments presentation.

Ivy Wile, Ministry of Environment and Energy

The COA which was signed in 1994, sets out an ambitious six year plan which provides the framework for coordination of shared federal-provincial responsibilities. The current COA is the fourth such agreement we've signed between the two governments since 1971. This agreement is focused on results. And for the first time ever, sets out very measurable targets, for action by the many partners who contribute to Great Lakes cleanup -- including governments, First Nations, industry, environmental organizations, community groups and individuals. COA also provides the basis for holding their government accountable and for demonstrating progress. Canada and Ontario recognize that cooperative arrangements with the U.S. is vital, and COA is also our mechanism which enables us to work with our colleagues, south of the border.

COA places emphasis on important priorities such as cleaning up Areas of Concern, virtual elimination of persistent toxics, ecosystem and human health issues. Actions under COA are designed to achieve three main objectives: restoring degraded areas, preventing and controlling pollution, conserving and protecting human health and ecosystem health. COA establishes a specific timeframe for action. But, we need to bear in mind that it is only a six year plan, and our commitment to the Great Lakes is for the long term. We must remember that the Great Lakes did not become degraded over night, and environmental quality will not be restored over night, because environmental systems require time to recover even after remedial actions are implemented. Recognizing this, we will continue to take action and monitor progress on the long term. Challenge faced on the Great Lakes cannot be solved by governments alone. I believe, we also heard that from our American colleagues. The combined efforts of all members of the Great Lakes community have led to significant successes and continue to be needed if all of us who live and work and play, in the Great Lakes basin are to see a vital ecosystem that is a benefit to us, and to the present and future generations. John?

John Mills, Environment Canada

Since the signing of the last COA in 1994, both governments have experienced a reduction in available resources. This change, as most of you are aware is consistent with the global trend towards smaller and more affordable government. As a result, the agencies participating in COA have focused their attention on those programs and actions which will result in the greatest direct environmental improvement in the Great Lakes. Governments have also forged new partnerships with those who share responsibility for the lakes, and with people interested in a healthy, clean and economically viable region. It is also becoming increasingly important for our governments to demonstrate there are both economic and environmental benefits to cleanup and protection of the Great Lakes ecosystem.

When we developed the COA targets in 1994, they were set as challenges, meant to stretch the limits of our ability. We are now at the mid-point of the current COA. An appropriate time to check on the progress and make necessary adjustments. We are assessing our collective ability to meet the COA targets and preliminary indications from that assessment, are that by focusing our efforts and by using innovative approaches to developing partnerships and other innovative measures, the majority of those

COA targets can and will be delivered on time. There are however, some that will require more time than originally anticipated. This does not mean that we are not keeping to our commitments. On the contrary, governments are dedicated to continuing the efforts beyond the year 2000, to cleanup the Great Lakes.

We are proud of the success over the past 25 years, and we are also immensely pleased with the extent to which the Great Lakes community is joined in helping to restore the Great Lakes basin ecosystem. I would like to offer a few examples. The ecological response of the herring gull population to declining contaminant levels in the Great Lakes is one tangible example of the success we have achieved. The numbers of herring gulls in the basin has increased dramatically over the past 25 years. They continue to be a major indicator species for environmental contamination, and are the symbol -- you can see on my lapel -- of the Federal Great Lakes Program. In addition the Herring Gull Monitoring Program, currently in its 25th year, is one of the longest running wildlife monitoring programs for contaminants in the world.

As Dave also mentioned, the peregrine falcon returned to the basin, from the cliffs of Thunder Bay through to the office towers in Toronto, is another real success story. This is one endangered species which has responded well throughout North America to the combined recovery efforts of people working together to reduce loadings of toxic chemicals and enhance wildlife habitat. And innovative technologies are being developed as part of Canada's Great Lakes Program which are now being successfully used internationally. There are many more specific examples of accomplishments we have made in meeting our commitments to COA, and we would like to now highlight a few of those. Ivy?

Ivy Wile, Ministry of Environment and Energy

I would like now to turn to the progress that is being made towards meeting COA targets and meeting our commitments under the Great Lakes Water Quality Agreement. I agree with John, when he stated that our two governments are quite proud of what we and our partners have been able to achieve so far. Specific information on our progress is contained in the Second Progress report which is available in the display area by the Environment Canada display, and I would encourage all of you to pick up a copy.

I would like to highlight progress using two different measures: innovative approaches and environmental results. First, under COA's objective to restore degraded areas, we are pleased to say that one Area of Concern or RAP area, Collingwood Harbour has been fully delisted. More than 50% of necessary actions to restore the remaining 16 Areas of Concern have been implemented, leading to 13% of beneficial uses being fully restored and significant progress towards restoration on the remainder. As a result, more beaches are swimmable, people have greater access to waterfronts, fish and wildlife communities are improving.

Another example of progress is the upgrading of sewage treatment plants. Seven sewage treatment plants have been optimized, and projects at 12 additional plants are underway. A great many sewage treatment plants have achieved phosphorus reductions which exceed all of our regulatory limits. These optimization projects clearly demonstrate, that environmental objectives can be achieved while at the same time saving taxpayers millions of dollars in capital investments.

We are also focusing our efforts on characterizing contaminated sediments, and developing and demonstrating innovative remediation technologies. Some of the highlights include: $9.3-million cleanup of contaminated sediments in Thunder Bay Harbour, Lake Superior sponsored by Abitibi, Canadian National Railways, Northern Wood Preservers, Environment Ontario and Environment Canada. A second project, a government industry partnership to cleanup contaminated sediments in Welland River, is also underway; and a $25-million rehabilitation plan for the ... Deloro Mine Site has been put in place. We have also successfully demonstrated some new Canadian remediation technology at a number of sites. This not only helps to fix the historical problems, but it is also an opportunity to market Canadian technology overseas.

Another area of focus has been the development of innovative partnership arrangements. For example in the Severn Sound RAP, an environmental association has been established as a partnership of seven municipalities, Friends of the Wye Marsh, Environment Canada and Environment Ontario to continue efforts to fully restore this Area of Concern. In metro Toronto, a four-party agreement is being finalized between Environment Canada, Ministry of Environment, the Waterfront Regeneration Trust and the Metro Toronto Region and Conservation Authority. These collaborative arrangements ensure the continued implementation of Remedial Action Plans, with clear community leadership, while maintaining government accountability.

Another noteworthy result is our collective efforts to conserve and protect species and rehabilitate habitat. We have completed four recovery plans for threatened species, such as Henslow sparrow, peregrine falcons, Eastern spiny soft-shelled turtle and a further eight plans are in progress. Fish community goals have been developed for Lake Erie, Superior and Huron and we have completed the rehabilitation of over 2,000 hectares of wetlands and over 500 kilometres of riparian habitat.

John Mills, Environment Canada

Under COA's [**Canada-Ontario Agreement**] Objective 2: to **Prevent and Control Pollution**, our focuses have been on reducing the use, generation and release of priority substances. Tier I substances are those of greatest concern -- the mega-uglies. And our focus is to virtually eliminate those. Tier II substances are those pollutants that have demonstrated potential to impair the Great Lakes ecosystem and are being addressed through life-cycle management and voluntary reductions at source. Efforts have led to reductions in Tier I substances, e.g. under the ARET Program, industries have reported the following: alkyl-lead reductions by 85%; octochlorostyrene reduced by 18%; dioxins and furans reduced by 66% and B(A)P reduced by 20%. In addition, reductions have been achieved in four of the eight COA Tier II substances: cadmium reduced by 20%, 1,4-dichlorobenzene reduced by 40%; PAHs reduced by 30% and pentachlorophenol reduced by 5%.

We will continue to press for future reductions through a combination of voluntary and regulatory approaches enroute to our goal of virtual elimination for Tier I and significant reductions in Tier II substances. We have achieved two significant milestones in relation to the prevention and control of pollution. The first, as was mentioned previously in the binational section was a signing of the Binational Toxics Strategy. Work continues to implement that strategy. Our second target achievement is confirmation of zero discharge of the five priority pesticides within Ontario's commercial sector. These priority pesticides are aldrin/dieldrin, chlordane, DDT, toxaphene and mirex.

The Federal/Ontario governments have encouraged voluntary pollution prevention as a preferred approach to environmental protection in the Great Lakes. While this approach has achieved some reductions of priority substances, we are concerned with the slow rate of progress to-date. As a result, a more targeted approach is being considered involving performance-based agreements with various sectors and facilities to produce more verifiable results.

We would also like to highlight progress on PCBs in collaboration with owners. Forty-six per cent of the high level PCBs have been decommissioned and 30% of the high level PCB waste and 20% of the low level PCB waste in storage has been destroyed. In an effort to continue action on PCB decommissioning and destruction both governments are jointly sponsoring a number of outreach activities across Ontario. These PCB outreach programs are designed to ensure that owners are aware of COA targets and their options for dealing with PCBs to the year 2000 and beyond. Companies such as Ontario Hydro, Eli Ecologic, Bovard Waste Management, General Electric and Toronto Hydro to name just a few are to be acknowledged for their efforts to destroy PCB waste.

Ivy Wile, Ontario Ministry of Environment and Energy

Under our third objective, which is to conserve and protect human and ecosystem health, we've made progress in a variety of areas. On the human health side we have carried out a number of research and outreach activities. For example, we've completed seven research studies on the exposure and susceptibility of high risk populations to contaminants such as PCBs. Studies are also examining the effects of persistent pollutants on reproduction, breast cancer, neurobehaviour and other impacts. Human health indicators are being developed to monitor long-term changes in health risks. As an added feature, support is being provided to community education projects to increase their understanding and to help them understand the risks and take avoidance measures.

On the ecosystem side through incentive programs with land owners and cooperative efforts with land trusts, significant strides are being made in protecting terrestrial and aquatic natural areas. A total of half a million hectares of land has been protected in the Great Lakes basin since 1992. Through collaborative efforts between Environment Canada, Ontario Ministry of Natural Resources, Ducks Unlimited and many other partners, we have secured more than 3,000 hectares of wetland habitat.

To advance the conservation of biodiversity our efforts are now focused on implementing the Canadian Biodiversity Strategy within the Great Lakes basin. Many of the successes we have achieved are a direct result of action taken by various stakeholder groups. One such example is the Ontario Environmental Farm Planning Process led by the Ontario Farm Environmental Coalition and funded by federal and provincial government agencies. Since the fall of 1992, more than 10,000 farmers have attended environmental farm planning workshops and over 5,000 integrated farm action plans have now been developed. As an aside, I would like to mention that in Ontario we have legislation that requires all farmers to take training and be certified; the training relates to the safe and effective use of pesticides and has a particular focus on alternatives and on integrated pest management measures to reduce pesticide use. And over 45,000 farmers have received this training. As mentioned earlier in the U.S. presentation, in the area of LaMPs, we've made some progress. Environmental problems and sources have been identified for Lake Superior and Ontario, and will be completed for Lake Erie in 1998, and load reductions and ecosystem targets have been developed for Lake Superior.

John Mills, Environment Canada

What Ivy and I have provided you this morning is only a glimpse of the many activities and programs underway at this halfway point of the current COA. Again, I would encourage you all to read the Second Progress Report to get a fuller picture of the achievements to-date.

In conclusion of the Canadian domestic program presentation, I would like to leave you with some thoughts on that program. Our first and foremost responsibility is to get environmental results, and to find the right indicators or measures of real progress. While we have made substantial progress, work on some targets will continue beyond the year 2000. We will also continue to invest in research and monitoring to identify and respond to emerging issues. As a result of 1996 SOLEC and other fora we know that there are other areas which our two countries and participating agencies need to focus attention on, including dealing with exotic species, land-use impacts and the impact of toxic chemicals on human health and in that regard I would like to encourage you to pick up a copy of the State of Knowledge Report on Environmental Contaminants and Human Health in the Great Lakes Basin, a recently published document coming from the Great Lakes 2000 Program.

We also recognize that our current agreement is only a milestone in our efforts to clean up the Great Lakes. And to paraphrase Frost, "We know that we have many more miles to travel and many more milestones to achieve before our job is done." Future success depends on all of us, all of you, continuing to participate and support. And I want to thank you sincerely for your participation in the past and your patience and participation here today and, will look forward to a continuing participation in the future. Thank you.

Questions from audience

John Mills

The next part of this session was an open microphone to ask questions. We are running a little bit behind time, so I'm going to eat into your lunch time, so that you don't cut back on your opportunity to ask questions. What I would like to do at this point is to ask you if you have some questions to please use the microphones in the walkways and please identify yourself and to whom you would like the question addressed.

Q: Lee Botts, Lake Michigan Federation: I have three questions, the first one is to Mr. Perciasepe. He referred to what he recognized as unhappiness with the Second Great Waters Report this morning, and my questions is: Given the emphasis that has been placed on the problem of atmospheric deposition, does your comment mean that you recognize at the conclusion of the Second Great Water Report that everything that needed to be done about atmospheric deposition is already underway, or are you going to try harder?

R: Bob Perciasepe: The Great Water Bodies Report lays out in some pretty good terms and analysis what some of the remaining problems are. The other part of the report was supposed to be and was, this determination or proposed determination under Section 1.12 of the American Clean Air Act whether or not we had adequate authority to deal with those problems that were identified. And I think there is a recognition that we think we have adequate statutory authority from Congress but we haven't exercised all that authority to the extent we need to do to deal with all those problems that have been identified in the report. So what we are endeavoring to do right now as a companion piece to when we have to make the final determination is to lay out strategically what other actions will be taken or are coming up in the future and underway that will be targeted toward dealing with those remaining problems using our existing statutory authority. I have to say that we do not want to ask Congress to reopen the Clean Air Act to give us more authority. We are going to look at how to maximize using the existing authority under the Act. So that the differences I think in the way that this has been described has been: Do we have adequate statutory authority versus have we exercised all that statutory authority. So that's what we're trying to do a strategy on.

R: (Botts) Okay, we'll be watching. I forgot to say, my name is Lee Botts and I'm a member of the Board of Directors of the Lake Michigan Federation. My next two questions are to Dave Ullrich. Dave, you identified the Integrated Atmospheric Deposition Network and the Great Lakes International Surveillance Program [GLISP] as two things that were going to be worked on for the future. It was up there as an acronym GLISP, and I was amazed to see it because we haven't been hearing anything about GLISP for years now. Does that mean, you're going to bring it back?

R: David Ullrich: I am going to have to ask for a little help from my colleagues here. I have Gary Gulezian who is the new director of our Great Lakes Water Quality Program with an extensive air background as well, and Jodi Traub who is head of our Water Program with an extensive Superfund background. Gary can you help me out on that a little bit?

R: Gary Gulezian, U.S. EPA: I can talk some to the IADN issues but I can't talk to the GLISP issues. That was before my involvement in Great Lakes issues. I think I would like to talk to some of our Canadian colleagues. IADN is an international effort ...

Q: (Botts) Well, it is ongoing, but the point is, is GLISP on going? That is the question.

R: (Gulezian) I guess I would like to turn it over to some of the people in Environment Canada who have been working on IADN and included that item on GLISP in the talking points.

R: Simon Llewellyn, Environment Canada: GLISP has not been ongoing for a number of years. But we have an intent to reopen the question of monitoring and surveillance. On the Canadian side we have done in the last 18 months a very intensive look at what we think are the requirements for monitoring in the lakes that range all the way from chemistry to some of the biological parameters. Having done a draft of that, our next step in trying to put back a cooperative monitoring program is to review that with our provincial colleagues and Fisheries and Oceans as well as the LaMP cochairs and U.S. EPA. But that is not to suggest that there has not been any monitoring going on in the lakes throughout all these years. There has been a lot of monitoring going on. It is that data which you are seeing summarized in the trends. But GLISP per se, why you haven't heard has not been in place and we would strongly like to put something back *in* that is now relevant to where we see the future priorities are.

Q: (Botts) I think that's encouraging. Finally, I would like to remind Mr. Ullrich that Ashtabula is not unique. In fact, the Ashtabula arrangements that are so innovative were based on an effort that first began at the Indiana Harbor and Ship Canal at the south end of Lake Michigan. My question to you is, "Will you please inform the IJC that there is some place else where a great deal of partnership is being developed in order to clean up the largest concentration of contaminated sediments in the Great Lakes and let them know that there are a lot of new kinds of efforts being made at the south end of Lake Michigan as well as on Lake Erie?"

R: (Ullrich) I will do that immediately. IJC Commissioners, not only is there wonderful partnership activity going on in Ashtabula. I will say that, and this is I think very important Ms. Botts, or Lee, that we must recognize that each one is unique. Because the people and places are unique and one of the things that we have tried to do from a federal standpoint is not a one size fits all approach, but tailor our approaches to the people and places who are there, and I thoroughly enjoy the uniqueness of each one of these wonderful partnerships as are forming.

John Mills

Can we take one from the center aisle, please?

Q: My name is ***Elaine Kennedy***, I'm alternate for the Chair of the ***Ontario Public Advisory Council*** and I am also Chair of the Public Advisory Committee of the St. Lawrence Remedial Action Plan at Cornwall. My comment/question is directed at Ms. Wile. The public who are concerned about environmental issues have in mind the seven generations that Jim Ransom referred to. However, the politicians do not. Their long-term vision is 3-4 years for the next election. Their short-term is the next media scrum. We count on civil servants to have the long-term visions and thus advise the politicians where their responsibilities are for future generations. What is your department's plan to encourage Minister Sterling to reconsider his reduced support for the RAPs, especially the PACs?

R: Ivy Wile, Ontario Ministry of Environment and Energy: I think part of your question refers to the elimination of some of the RAP coordinator positions. I believe six positions were eliminated, and I think I want to show you that it was done with very careful consideration as to the stage of the RAP, the ability of staff from our regional, district offices to provide ongoing support -- and I believe you're getting that in the eastern region from southeast region -- and perhaps the status of the RAP and the discussions that were taking place on partnerships. We had mentioned several that partnerships and the willingness by local communities to assume more ownership and more leadership in the RAP areas, as far as overall funding, I think we are still continuing to contribute all the funding to infrastructure renewals, remediation programs; we've mentioned several of them in our presentation -- DeLoro mine site in particular, I think in your area, so the funding is continuing to flow and I assure you that Mr. Sterling is very committed to continuing our contributions to the RAP areas and to the Great Lakes in general.

Q: (Kennedy) We encouraged through COA that this be continued, especially in the form of leadership for the Public Advisory Committees. We can have partnerships, but we also must have leadership. Thank you.

John Mills

Can we take one on my left here?

Q: Thank you. My name is ***Tim Eder***. I'm with the ***National Wildlife Federation***. My question is for you, Mr. Mills. I believe that Canada-Ontario Agreement as well as the Virtual Elimination Strategy signed by the U.S. and Canada pledges a 90% reduction in releases of mercury, but it is also my understanding that due to Ontario Hydro's decommissioning of their nuclear power facilities, that the release of mercury from Ontario could increase by as much as 70% due to the replacement of that power generating capacity with the burning of coal. Is that accurate? And if so, what will Canada and Ontario do about the potential for increased mercury release?

R: John Mills, Environment Canada: I cannot comment on the accuracy of your predictions in terms of the emissions. I am really not an expert in that area. But, it is quite obvious that given the changes, given the things that are happening with Ontario Hydro, it makes that target that much more challenging. I would look to one of my colleagues, I'm not sure, Ron can you comment on the specifics in terms of the prediction of 70% increase. Those are figures that are new to me.

R: Ron Shimizu, Environmental Protection Branch, DOE: I believe those are estimates at this time, Tim. We will continue to work, certainly with Ontario Hydro in trying to get them to eliminate their emissions, certainly including mercury. There's even more emphasis on that, as we also put it more priority on their emissions for ground-level ozone, and also on fine particulates. I think perhaps I might ask my provincial colleague, Ian Smith who I understand is working on mercury at this time, to comment more specifically.

R: Ian Smith, Ontario Ministry of the Environment: Hydro is a pretty hot topic. I don't think your 70% number is correct. It may be correct for that particular sector, but in terms of total emissions in Ontario, certainly it won't increase emissions by 70%. But because mercury has been a bit of a problem substance for us in Ontario, even with the work we are doing under COA, the reductions have been less than we anticipated. So in Ontario we are starting a whole new initiative modeled after the Michigan and Minnesota activities to focus on mercury. One of the focus areas is currently energy, both conservation and alternate energy sources. I hope that answers your question.

Q: (Eder) What are you saying about the 90% reduction target? Are you saying that that's no longer a target?

R: (Smith) Oh no, we're clearly pursuing that target, but right at this point, we don't think we can meet 90%. One of the problems clearly is the nuclear problems that we are having at Ontario Hydro. The need for us in Ontario to either search out alternate sources within the province, potentially importing electricity from other sources. Our agency is currently evaluating all of those alternatives. And mercury is high on the list of how they evaluate alternative energy sources. It is not being forgotten.

Q: (Eder) Thank you.

John Mills

Can we go to the aisle to my right, please.

Q: My name is ***Sydney Baiman***. I'm from the Chicago area. I work for an organization called ***NEIS, Nuclear Energy Information Service***. I was concerned here about the IJC. Many toxins and pollutants have been mentioned but nothing has been mentioned about the radiation effects, radioactive effects of the lakes. There are at least from 30-50 deadly radioactive hazards that border the Great Lakes and the rivers which emit radioactive contaminants like cesium-137, strontium and on Lake Ontario alone, there are 18 nuclear reactors that border both the Canadian and U.S. side. These plants use the water to cool their reactors. They are constantly taking in and emitting millions and millions in gallons of contaminated water back into the lake. The American side has boiling water reactors which are very bad polluters. The Canadian sides have the CANDU reactors which are known to emit way, way too much tritium. As a matter of fact, there is far too much tritium in the drinking water of Lake Ontario. One nuclear reactor makes 500 pounds of plutonium and 30,000 pounds total waste per year which affects the surrounding ecosystems. Just for an example, there are now on the dunes of Lake Michigan, three large dry casks stored with the high-level nuc-spent fuel, each cask contains enough high-level waste to equal 100 Hiroshima bombs, and there are three of these on the Sleeping Bear Dunes of Lake Michigan. Now we know that these casks are leaking radioactive substances, and I was wondering if the IJC has any policy about controlling the radiation and your Canadian nuclear program. Of course if you're going to clean up the lakes, you're going to have to shut down the nuclear reactors, because these radiative pollutants are not only persistent, but they are permanent and very deadly for health, breast cancer and low-weight babies. I'm asking all of you.

R: John Mills: The question as I understand it, has the IJC looking at radionuclide as a toxic substance. Yes, they have.

Q: (Baiman) You have not mentioned it once; not one report. And this always happens with government reports. It happened in the global talks. Nothing is ever mentioned about radiation.

R: (Mills) Your point is taken. In terms in how the governments deal with radionuclide, there are regulatory programs in place in both countries, to deal with that, to address those situations or that issue. Again, I am not an expert on it. But I wonder if one of my colleagues can help me out here. Ron?

R: Ron Shimizu: The International Joint Commission does have right now a task force, I believe on nuclear or radionuclides in the Great Lakes basin. There are probably members of that task force in the audience. Murray, would you like to make comment?

R: Murray Clamen, IJC: My name is Murray Clamen, I cochair the Nuclear Task Force of the IJC which is in the final stages of completing a report. If you look at the priorities document that is available right here, in the back of that there is some interim findings of the task force. The IJC has obviously expressed a very strong interest in the question of radioactivity in the basin recently, and the task force is attempting to deal with things like monitoring and compliance, and data reporting. That is the first of perhaps an extended look at nuclear issues that the IJC is dealing with. Does that address your question?

Q: (Baiman) Well, I don't know what you mean by "compliance," because the nuclides certainly don't abide by any of them, by clean water or clean air safety rules. I would suggest that the IJC have a strong statement that these plants be closed and do not go into the MOX program, which would just accelerate the nuclear program -- by MOX I mean the mixed plutonium based fuel which supposedly you are going to be the first people to experiment with -- and I suggest strongly that you do not do this and recommend that the plants be shut down. That is my suggestion. Thank you.

R: (Clamen) The Commissioners are here and I'm sure they are listening very carefully to that and other recommendations. Thank you.

John Mills

Can we move to the centre aisle, please?

Q: Hello, my name is ***Eleanor Dudar***. I am the ***Toronto Board of Education***'s Environmental Education Officer. First I want to say, I am encouraged by the broadening perspective we now begin to talk about and begin to think in terms of, rather than Water Quality Agreements, simply ecosystem health. And that of course, is reflected in a number of ministries at the provincial and federal level here on the Canadian side. I am encouraged also that so many of you have spoken of the importance of public education. There is for me a really critical piece missing. No one has talked about education in the schools. In Ontario we face a time of unprecedented change in all sorts of ways in our education system, specifically our curriculum is being revised and rewritten, and I'm wondering what strategies you may have for working with your colleagues at both the ministerial and curriculum writing areas to make sure that as we face this basics education thrust that people at all levels understand that there need to be new basics, not just old basics? Additionally, were there any colleagues from the Ministry of Education invited to be here and if not, why not?

R: Ivy Wile: I don't believe we have invited any colleagues from Ministry of Education and perhaps that is an oversight we should correct in the future. But we do work closely with curriculum development. We've recently launched a program on Partners and Air, which involves students, they're interactive on the web, direct linkage to air data and we encourage them to share their data amongst schools and present their data at various events which we sponsor. I know other organizations, the Lung Association, a number of others also involved in various educational projects. So we are actively involved.

Q: (Dudar) Thank you. That's a start, but what is really important is that as the new curriculum is written, that all of us here, as citizens or as people in the employ of the civil service be sure that we insist that environmental and sustainability education is both explicitly and implicitly embedded in our science and social studies programs. Thank you.

R: John Mills: Perhaps just add a couple of comments. We are very shortly going to be releasing a CD-ROM on the Great Lakes that covers a whole range of information topics and the audience for this CD-ROM is public and high schools, particularly Ontario, wherever, but is a very broad-based one. It also provides a lot of information about how to link in to a whole range of information sources well beyond the federal/provincial governments. The only other thing to mention is that there is information around Health and Welfare are producing teacher kits in the Health and Environment area which is being prepared in conjunction with a number of the teacher groups and that is available, in fact Dr. Andy Gilman is here if you want to perhaps more directly to him about that. So there are a number of activities underway on the educational front. David do you want to make a couple of comments.

R: David Ullrich: Yes, I would like to address the issue just briefly and first of all thank you very much for raising that issue because frankly 50 or 70 years ago if we had done a better job on education we wouldn't be having the problems that we have right now. This has been a real effective part of our programs on the U.S. side. Each of our ten regional offices has somewhere in the neighborhood of just under $200,000 that we give out in environmental education grants to various schools and organizations around the country and in the Great Lakes area as well. In addition to that, there are national environmental education grants. We have a number of projects. One in particular, the mighty acorns project with the Nature Conservancy that takes school children, including my seven year old son, out into the few remaining prairies in the Chicago area to gather seeds and just a wide variety of activities. But I could not agree with you more that this is probably one of the most effective prevention strategies that we could engage in. Unfortunately, our dollars are not as large as we would like, but I think our return on our investment there is probably greater than almost any place else. So thank you very much for raising it.

John Mills

I would just echo that there are a number of programs on the Canadian side also. And I won't take up your time because I know there are a number of people who want to ask questions. So I'm going to immediately go to the aisle on the right. I'm sorry, did I miss... I was going this way? Excuse me, on the left.

Q: I have a question for David Ullrich. I am ***Russell Bimber*** from Painesville, Ohio. ***Retired*** after 40 years as a ***pesticide research chemist*** with Diamond Alkali and Diamond Shamrock Corporation and successors. Have you had a problem with state EPA's investigating Superfund sites on behalf of U.S. EPA, ignoring large quantities of hazardous waste that companies have reported burying in order to please local real estate interests?

R: David Ullrich: I am not aware of any such situations where either a state or federal person might have ignored any particular waste that might have been disposed of. I think that with the large magnitude of sites that we are trying to deal with there may have been occasions where perhaps we have not identified all of the waste at the initial effort to deal with it, but I am quite confident that when situations are brought to our attention that there is waste that may have been overlooked, that that is investigated; whether by state or federal investigators. I am not aware of any specific situation where that might have occurred.

Q: (Bimber) I would like to send you some documentation on one such site. Thank you.

R: (Ullrich) I would very much like to know about that.

John Mills

Now we go to the right.

Q: This is for Jeanne Fox. My name is ***Larry Behan***, I'm the vice-chairman of the ***Sierra Group*** in Buffalo. Last Tuesday night at our meeting, we had a very frustrated member come and tell us about a veal factory farm on the shores of Lake Erie just inside of Sturgeon Point. He lives right next door to this veal factory and he and his neighbours have been subjected to terrible odour from it, for a number of years. They have looked at it and it appears to be draining calf manure into Lake Erie, Went Beach and Woodlawn Beach are just down the way from it. There is a clean water intake to the other side of it. He has been to the DEC and the Department of Agriculture and has not been able to get any satisfaction from them. I would like your advice as to how we might be able to help him in this situation.

R: Jeanne Fox: I'm going to ask Gerry Mikol to respond. He's from DEC, the regional director and tells me he's aware of the situation. For our Canadian friends, the way we work is we delegate to the states many programs. We do thought, because the federal programs have oversight and work with the state agencies in that regard, who obviously talked to Jerry about this afterward and found out everything he knows about it and then we can do some follow-up. But, I would like Gerry Mikol to talk about this.

R: Gerry Mikol, NYSDEC: Larry, thank you. We are familiar with the specific situation you refer to and the farm. We've actually sent some of our inspectors out there over the last several months. Rather than get into the details I think one of my water quality engineers is here today who is family with the results and we could chat together on that site. But we have been aware of the situation, we've been out there as well.

Q: (Behan) Okay, we'll be in touch.

John Mills

Can we go to the centre aisle, please.

Q: My name is ***Roberta Birkman*** and I'm a science teacher with the ***Toronto Board of Education.*** In listening to the different presentations this morning, I heard several times that the sediments were removed or dredged, or taken away so that they wouldn't go directly into the water; removing the contaminants. My question is, "What happens to those sediments once they are removed, how are they dealt with so they don't re-enter the ecosystem?" And anyone can answer.

R: David Ullrich: From our own experience on the U.S. side there are a number of different strategies that are used to deal with the sediments once they are removed. One technique is to try to concentrate them and then use a thermal-destruction process to destroy them, to virtually nothing of what they had been before. That is a very expensive approach to dealing with the chemicals, PCBs in particular, but when you can concentrate and then thermally destroy them, that is an effective means.

Q: ***(Birkman)*** Can I just ask you then, what do you mean by thermal destruction?

R: (Ullrich) A common term is incineration. It's burning it up at high temperatures. I know that's a very controversial subject. I've been involved in many of those situations myself. But the other primary means is to use some form of land disposal with the double liner, leachate collection system and long-term monitoring to make sure that if there are any leaks that they can be dealt with effectively at that time. Those are two of the primary approaches that are taken once the material is removed. And I would say that although there continues to be controversy about these disposal or destruction techniques, it is such a vast improvement over having them loose in a water environment or other places where humans and plant an animal life can be exposed, that it is clearly a step in the right direction. Although, there continues to be extensive research on better ways to ultimately dispose of these materials.

John Mills

Can we go to the left aisle.

Q: My name is ***John Mahan***. I'm really not representing anybody but myself. I am a ***writer*** that specializes in Great Lakes ecosystem issues, however. Ms. Wile you used the term "safe use of pesticides." I'm familiar with Dr. Peterson's research that shows the one hit scenario that goes like this: a miniscule dose of various organochlorines one time on day 15 of a rat's gestation causes profound and permanent effects on its offspring later on. Endocrine disruption is the popular term. I'm also familiar with research by Dr. Porter that tells us that such commonly-used pesticides such as aldicarb at exquisitely small levels, levels as small as what we are finding in drinking water now, when given in combination with other pollutants in the environment, cause similar endocrine disrupting effects on mice. That's just the tip of the iceberg and I won't belabor the issue. But I have to ask you, would you define your term "the safe use of pesticides" and put it in the context of the government's commitment to virtual elimination of such substances.

R: Ivy Wile: I think the context that I had in my speech was from the perspective that farmers are trained to ensure they understand how to mix, load, avoid spills and that they understand the nature of the chemicals and toxicity of the chemicals they are using and perhaps use that information to make better choices. Look at opportunities to reduce use through integrated pest management, other alternatives. So it was safe in that context as opposed to the direct toxicity of the chemical.

Q: (Mahan) Safe, if they are used as prescribed, they are dangerous. When they are used on the crops they go into groundwater. If they are used with IPM even. Since they are persistent how is this consistent with virtual elimination. Do you have a target of eliminating them entirely?

R: (Wile) We identified progress on eliminating five of the most persistent toxics, toxic pesticides. I believe mirex, aldrin, dieldrin, chlordane and we've actually found that these have been eliminated from commercial use. We've banned their use effectively and then followed up through an audit to ensure that there was no illegal use or continued discharge. So we've made some serious efforts to get rid of the most persistent chlorinated hydrocarbon types of pesticides.

Q: (Mahan) What are you doing to see that they are not replaced by equally damaging ones?

R: (Wile) I suppose the fact that they are less persistent is one factor. Also we are reducing application rates, we are implementing various risk management measures. I'm not a pesticide expert but certainly the newer pesticides go through a much more rigorous assessment process before they are put on the market, than perhaps pesticides which have been on the market for 20 or 30 years and went through a much less vigorous testing process. When they are registered for use by federal agencies both in Canada and the U.S.

Q: (Mahan) I won't keep belaboring the point except to make sure I understand. Your goal appears not to be virtual elimination, but control. Is that correct?

R: David Ullrich(?) There's virtual elimination of Tier of I substances. That is the goal.

Q: (Mahan) But the goal also not to damage the ecosystem and what are we doing about the ones that are replacing them.

John Mills

I think the point is made. Maybe we can carry on the conversation/discussion outside. There are a number of other people that need to chat and I'm really conscious of the time and people are taking their lunch hour. Let's go to the right.

Q: My name is **Paul Muldoon, Council of the Canadian Environmental Law Association**. It's a two-part question. The first part is for you Mr. Mills and the second part is Ivy Wile. And both relate to comments in Canada's response to the recommendations of the Eighth Biennial Report of the International Joint Commission. Let me ask the first question first. You mentioned in your speech Mr. Mills and in the report, that one of the responses to the IJC's recommendations is proposal for Canadian Environmental Protection Act and that Act would really be a cornerstone piece of legislation to allow Canada to fulfill its obligations under the Great Lakes Water Quality Agreement [GLWQA]. What you fail to outline in this and I'd like a response, is the proposed definition of virtual elimination in that piece of legislation. Section 65 of that legislation states that "virtual elimination really relates to a continued use of the most persistent, bioaccumulative substances because you are allowed to use those and not only allowed to use them, but in fact they can only be controlled to the extent that they are released in detectable amounts and harm is established." That would seem to be in counter-position to the precautionary principle to pollution prevention, but clearly it seems to be exactly opposite, word-for-word contrary to the definition of virtual elimination in the Eight Biennial Report, particularly page 10. So can you please reconcile your definition in section 65 with page 10 of the Eighth Biennial Report of the term virtual elimination.

R: John Mills

I am going to turn to my colleague, Mr. Shantora to help in this regard who knows a lot more about Section 65 than I do.

R: Vic Shantora, Environment Canada

Good morning, my name is Vic Shantora. I think Paul the issue is a little more complex than perhaps what you have set out here. The objective is to ensure that the use or the release if it's persistent, toxic or bioaccumulative is prevented. In the case of commercially found chemicals or whatever, other sections of the Act, even the existing Canadian Environmental Protection Act, allow for bans and phaseouts. This particular new section, and by the way it has not been reintroduced into parliament, so I'm not in a position to indicate the substance of any of the provisions as yet, but the objective of the new provisions would be to set out a broad national framework to ensure that virtual elimination occurs. The process by which that will happen is for example for dioxins and furans that by setting these targets, these long-term goals we will be looking to industries or emitters of these particular substances, and I'm thinking of dioxins and furans in particular to look at alternate strategies, alternate processes, alternate techniques so as to prevent their releases.

Q: (Muldoon): My point is that that is not what the Section says. So I'm hoping and I'm asking for you to go back and tell Ottawa to redefine that Section to conform to your statement; that would be useful. The section part of the question is to Ivy Wile. And the statement I would just like to comment on is the Province of Ontario stated the proposed provincial legislation initiatives over the past two years will not reduce environmental protection. Yet in the last two years, we've seen a repeal on the ban on incinerators in Ontario, a proposal not to require pulp and paper industries to undertake AOX plans to achieve the zero discharge commitment. We've seen about a 39% cut in your budget which means that the water monitoring and surveillance regime stations have been down from 700 to 200 since 1991. It is the least number of air monitoring stations we have had in Ontario in 20 years and there is noticeable decline in enforcement actions. So how do you reconcile those initiatives with the statement in your response to the IJC?

R: Ivy Wile: Perhaps I can take them one at a time, Paul. The ban on incinerators which was lifted. You are well aware that was indicated in Mr. Harris' election campaign and he lived by that commitment and made the changes. However, I would like to think that the new criteria we can put in place which would control new incinerators are really very stringent and certainly dioxins and furans levels emissions if any, would be extremely low under the strict requirements we put in place. As far as the AOX, you know that was a proposal that was put forward under some of our regulatory reform initiatives. No decision has been taken. All the pulp and paper mills with one exception are well ahead of reducing AOX levels. They in fact were possible in a situation where we can reduce the limits ahead of schedule and we're also participating in some studies that are looking at what are the components of AOX and should we regulate the individual chemical components, since AOX is simply a surrogate measure. Monitoring stations, you mentioned that we had the lowest number of air monitoring stations in 20 years? That's incorrect. In fact 20 years ago, we probably had far fewer monitoring stations than we have today. What we are trying to do is rationalize where we do our monitoring. In the past, they were added in somewhat of an ad hoc manner and we're putting a lot of time, effort and money into upgrading our monitoring systems so that we for instance, PM10 and 2.5 monitors because they are more significant to health...

Q: (Muldoon) Is there is disagreement that there's a less number. Are you saying there is more or less air monitoring station than there was let's say, five years ago?

R: (Wile) I can't that answer that exactly, but I can certainly find the information for you and let you know; I don't have it with me today. But, I would say we're roughly in the same ballpark. Water-monitoring stations, many of the stations, as you know we've tried to focus our efforts, we've tried to identify where instead of monitoring, because you've always monitored there, which doesn't seem a particularly useful way to spend taxpayer's money, we have focused on where the monitoring should take place, and some of the drop-in stations actually are flow-measuring stations rather than actual monitoring water quality.

John Mills

I'm going to take two more questions and then we'll close up because I see we've now taken almost half an hour of your lunch period.

Q: I'll try to make this quick. I'm ***Mary Ginnebaugh,*** from ***the Detroit River AOC*** and my question is to EPA. The Great Lakes Water Quality Agreement is very clear about the commitment in conjunction with the state to ensure that Remedial Action Plans are being addressed and there is a commitment to that. The state of Michigan which has 14 AOCs, three of which are international, has made a decision to reduce their level of support and effectively walk away from their commitment to the RAP process. My question to EPA is what are they going to do and are prepared to do to ensure that there is meaningful public involvement in the Michigan RAP process and what commitment to ensure the delivery of the stage II requirements within each RAP?

R: David Ullrich: Well, we have a number of thoughts in mind and I will not speak for Michigan. If Tracy Mehan is here and would like to add anything, I would be happy to have him address it as well. We recognize the central importance of the RAPs to this process and I will say at the outset that making this work as effectively and as efficiently and as fast as we would like has been a real frustration. I think part of it is a reflection of the complexity of the issues that we are dealing with and the desire to have the broadest participation in the process. Very honestly, we are learning how to manage such a process as we are going along. I think particularly over the last two or three years where we have developed some strong partnerships in the Ashtabula area, in the Grand Calumet River area, of Northwest Indiana and other areas, it is my hope is that we can transfer some of what we have learned to Michigan and other areas as well.

In addition to that, we have found that we can be much more effective if we have people not in Chicago, but out in whether it's Detroit or other of the Areas of Concern. Unfortunately, the bureaucratic process associated with that takes time as well. But we are in the process of seeing if we can get more of our people out directly in these areas of concern to get to know the people and to know the problems better. So that is one thing that we are doing as well. Beyond that, with one of our new approaches in re-inventing environmental problem-solving approaches, we are focusing on specific geographic areas. I think you know about the Southeast Michigan initiative, we are not only dedicating individual people who might have had just a water background before, but we are trying to bring air, hazardous waste, pesticides, toxics people as well. So those who might not have been working on these types of issues before now have their time and their expertise available. We're basically trying to steer our resources better towards these priorities and Areas of Concern are a priority. So if a state does have a resource problem or concern, we are prepared to steer our resources in that direction, and a key part of that will be enhanced public participation.

John Mills

We'll take one more question from the right. And I will make the point, that I know there are others that want to talk, but I am very conscious of the time. Representatives of the government are available to talk with you individually, please make sure you come and talk to them directly. Please, one more question.

Q: I'm **a concerned student** from **Revere High School** in Ohio and I have a question that returns us to the education issue that was brought up earlier. You mentioned that there are lots of teacher's kits that the teachers can receive to teach the students about the Great Lakes and I was wondering do any of those teacher's kits actually teach the students about the environmental problems that we are having, such as the nuclear reactors and the increased breast cancer risk and stuff like that? Or do they just teach the issues of ecological aspects and industry aspects and your basic knowledge like that.

R: David Ullrich: I'm not familiar with the packages. My understanding was that they dealt with a wide range of problems as to whether or not they address specifically the issues associated with nuclear reactors and associated problems, I just don't know one way or another. But I would be happy to make sure that you get the information that is available and to the extent that that might not address all of the issues, then we can take that information back and see whether or not adjustments could be made in the information that is provided.

John Mills

Thank you very much, ladies and gentlemen. I will now turn it back to the Commissioners who have been sitting patiently and I know Co-Chairman Mr. Baldini had a couple of announcements to make. Thank you for your patience and if there other questions, please come and talk to us directly.

Chairman Baldini

Let's thank government for their presentations. I know they are going to be here to answer some of your questions. A couple of very quick points. First of all, on the back table there is a document that looks like this. It is called, "The Proposed Priorities for the Next Cycle." We would like you to pick that up. This is how we plan. We plan in two year cycles. These are our proposed priorities for the next two years. We would like you to review it, we would like comments from you. And please send those to any one of our three offices, Washington, Ottawa or Windsor. Please do that. Secondly, there are displays. I noticed quite a few people have stopped in to see them, right next door. Some of you have not picked up your tickets for this evening's dinner yet. You paid for them, you have to pick up your tickets. And also a reminder about the speakers cards -- fill those out. And last, we would like to start as close to 1:00 p.m. as possible. There is a quick buffet in the dining room. Inexpensive, but good food I'm told. They set it up specially for us to try and move things quickly. So thank you once again, very much and let's thank every one else. See you at one o'clock, 35 minutes **Adjournment for lunch**

INTERNATIONAL JOINT COMMISSION GREAT LAKES WATER QUALITY AGREEMENT PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

PUBLIC MEETING -- PART 1

Chairman Baldini

We welcome now the opportunity for you to provide some advice to us on the Agreement. First and for the next half hour, we have reserved time to hear a coordinated presentation from representatives of environmental non-governmental organizations. After that we will hear a short presentation by Paul Muldoon and Lee Botts. And also, a group of students from Erie, Pennsylvania followed by students who attended a student environmental summit in Buffalo, New York. This will be followed by an open microphone opportunity and we will monitor that as it goes along. So I'm going to turn this portion of the program over to John Jackson who is no stranger to all of us. John?

ENVIRONMENTAL NON-GOVERNMENT ORGANIZATIONS PRESENTATIONS

John Jackson, Great Lakes United

Thank you, and thank you to the Commission for inviting us to be here today. I'm John Jackson with Great Lakes United [GLU]. We have a presentation to make on behalf of environmental groups around the basin. You heard this morning from the governments, their statements of the progress that they have made over the past 25 years. We felt as citizens' groups that we had to sit down and do our own in-depth assessment of what has been done and what has not been done over the past 25 years. The Canadian Environmental Law Association, the National Wildlife Federation and Great Lakes United sat down and went through the Water Quality Agreement item by item and came up with a report in which we detailed what had been done and what had not been done. I think the title gives you some sense of our conclusion which is called, "Treading Water." They clearly have not solved the problem. We have here a 170-page document of our detailed assessment. I have for the Commissioners, a summary at the moment. The full document is on its way and we'll make sure that it gets to your staff.

Based on our assessment of the commitments that governments themselves made in the Great Lakes Water Quality Agreement, and we also did the assessment on the basis of the recommendations that the IJC has made over the past 25 years, because those recommendations from the IJC have been absolutely critical in understanding the implications of the Agreement and where we need to go with it, and we as citizens in the Great Lakes basin have immensely appreciated those recommendations that you have made and look forward to future great recommendations.

Our conclusions are that we are alarmed that first of all we haven't gone as far as we need to go. And secondly, a fear that there is going to be a falling backwards. That we are going to lose ground and we're seeing the signs. You heard some of it this morning. The cuts in various programs, a movement away from a regulatory approach to a voluntary approach, and the dropping of responsibility, very often by the federal and provincial and statement governments onto municipalities who do not have the resources to do the job and onto volunteer groups who don't possibly have the resources to do the jobs. We leave that document with you to read in depth. We will not go into detail on it now.

In addition, what we've done is citizens groups around the basin have written an update on a document that we gave to the IJC two years ago, called, "Our Lakes, Our Health, Our Future." And this is a document that assesses what has changed in the past two years and what we then feel needs to be done in the future. Our people will be commenting on various aspects of that. Enclosed with that is a report card that we have put together on our assessment of governments' progress and we leave that with you at your leisure to read. Needless to say, we don't feel that the governments have done a good enough job. In most categories, they are ranking around C, D, mostly in the D area. They clearly have not done the job. Some people would put them lower; we've been generous in our assessment. We'll begin by talking about persistent toxic substances -- Diane?

Diane Heminway, Great Lakes United

Thank you, John. We are deeply concerned about a number of things, as you'll see in the report. We feel there is a tremendous need to halt the release of persistent toxic substances into the Great Lakes, as it is now abundantly clear there is no longer merely suspicion that these chemicals are causing harm. The evidence is in. The unheeded warnings of the environmental community are now resounding in scientific circles. Even the U.S. Dept. Of Health, Agency for Toxic Substances and Disease Registry agrees that the data confirms that there is destruction to wildlife and humans. It is occurring as a result of exposure and bioaccumulation of persistent toxics. EPA's Office of Children's Environmental Health acknowledges that the rapidly increasing incidence rates of certain childhood cancers can be attributed to no other cause, than toxic chemicals in the environment.

We continue to witness in our communities the tragic consequences of industrial poisons -- deformed wildlife, reproductive failures, hormone disruption, weakened immune systems, birth defected babies. and exceedingly high rates of cancer. They are undoubtedly a direct result of the chemical barrage. In the community of Rochester New York, within a five mile radius of Kodak, the state's largest polluter, over 40 children have been diagnosed with central nervous system cancer. This is cancer of the brain and/or the spinal column. The youngest victim is an infant, just four week's old. We are tired of this silent corporate violence and we are tired of the government's broken promises. We are still waiting. We are waiting for EPA's dioxin reassessment, we are waiting for enforcement of environmental laws while we watch the gutting of environmental budgets in Ontario and Quebec, and New York State and other Great Lakes states. And we are waiting while we watch U.S. elected officials adapt policies to protect and defend polluters under the guise of regulatory reform. We watch as the assault continues.

The map that you see before you gives you a very thumbnail sketch of the toxic releases that are occurring. Some 382 pounds of toxic substances were released in 1992/93. This is Canada Pollutant Release Inventory [NPRI] data and U.S. Toxics Release Inventory [TRI] data from the U.S. As I said, this is a thumbnail sketch. The General Accounting Office estimated that the TRI data represents only about 5% of the total releases. There are over 14 million chemicals and chemical compounds out there with between 75 and 100,000 of them used commonly in commerce now, today. This map represents only some 200-300 chemicals; some 200 in Canada and about 350 in the United States. As I said, this is a very, very thumbnail sketch. The picture is much worse than this map indicates.

In our call to confront persistent toxics, **we turn to the IJC and beseech you to commit to the following recommendations**. (1) We ask that you study the effects of current legislative attacks on the future ecological integrity of the Great Lakes and transmit that report to all jurisdictions in the basin; (2) Consistent with the philosophy of zero discharge, we ask that you urge the governments to develop materials, policy projects starting in critical industrial sectors that will lead to zero discharge, and to seek precautionary approach in environmental decision-making; (3) To facilitate planning for a just transition, involving governments, labour and industry to a sustainable economy; (4) To broaden its call for global ban on selected toxic substances to include other critical pollutants as well as processes, such as incineration, of chlorinated feedstocks that unintentionally produce toxic substances like dioxin.

We are also deeply concerned about the increase threats of radionuclides. Not only does pollution from radioactive waste continue to threaten the Great Lakes ecosystem but since 1995, we have seen proposals to use weapons-grade plutonium fuel in commercial reactors. A proposal that could easily spread deadly contamination throughout the Great Lakes basin. We are being forced to acknowledge that nuclear reactors are rapidly deteriorating, especially in Ontario where Ontario Hydro's units on Lake Huron and Lake Ontario are spilling ever larger quantities of tritium-tainted water into the Great Lakes. There are 60 nuclear power reactors that directly impact the Great Lakes watershed and windshed. We are witnessing electric power restructuring, forcing nuclear utilities into bankruptcy and creating huge public cleanup liabilities. While we must accept that cleanup is really a myth. In addition, we continue to watch day-to-day operations of uranium mines, refineries, nuclear research laboratories and nuclear weapons production facilities. The vast majority of these facilities are located on the shores of the lakes. Daily their operations continue to contaminate the Great Lakes with the release of radioactive pollutants.

Today we are asking that the IJC make the following recommendations: (1) To complete its study of nuclear power releases and waste storage leakages of radioactivity, and make this study available to the public; (2) To recommend that your 1993 recommendation that "governments incorporate these radionuclides which meet the definition of persistent toxic substances in their strategy for virtual elimination of persistent toxic substances" be incorporated as an amendment to the 1997 Great Lakes Binational Toxics Strategy and that the impact on human health will be acknowledged and addressed; (3) And lastly, recommend to the governments that they phaseout nuclear risk in the Great Lakes basin by scheduling deadlines for the phaseout of radioactive pollutants from nuclear power plants, imposing an immediate moratorium on the granting of new reactor licenses, imposing an immediate moratorium on storage of additional high level radioactive waste, banning retrofitting of reactors to accommodate new fuel configurations such as MOX, and phasing in energy efficient and renewable options based on full cost accounting. We ask that you commit to these recommendations because it is the right and moral thing to do. Thank you.

Julian Holenstein, Great Lakes United

Thank you. My name is Julian and I'm a member of GLU as well. I'm also a resident of northwestern Ontario. I live on the northshore of Lake Superior at the very top of the basin and I'm happy that you've held this meeting and that I've had an opportunity to come down and talk to you. I'm here to ask for your help. Lake Superior is one of the most beautiful and pristine lakes on this planet. It is a lake that remains relatively clean to this day. It is a lake that screams out opportunity; opportunity to be pro-active. Just look at this map showing the toxic releasers in the Great Lakes basin. Sure there is a few dots where Lake Superior is, there's a few circles, but there is not that many. This is where there is an opportunity. If our governments take the initiative, Lake Superior could become the model of a healthy Great Lake. Unfortunately, the governments surrounding Lake Superior have not made serious measurable progress towards a special designation. A designation that will freeze toxic discharges at present levels as recommended by the binational forum. In fact, the government is not even uniformly regulated, permitted, zoned or in any way changed what activities are allowed on shores or in the air and water of Lake Superior.

Six years after accepting the challenge made by this Commission, our governments have not made any significant progress towards establishing Lake Superior as a zero discharge demonstration zone. It is time, in fact it is long overdue to immediately designate the whole of Lake Superior as an area where no new or increased discharges of persistent toxic substances are allowed, and to take action on atmospheric deposition to Lake Superior by identifying air sources of the nine zero discharge chemicals and taking steps towards elimination of these sources. A healthy future for Lake Superior and other Great Lakes also means maintaining and renewing biodiversity and forest ecosystem health.

The Great Lakes Water Quality Agreement *clearly* charges the IJC with monitoring progress towards the preservation and restoration of biological integrity of our Great Lakes ecosystem. To this end, little progress has been made. In fact, in many cases our governments are dismantling environmental legislation. In the government-sponsored State of the Lakes assessment it was found that 11 of the 17 Great Lakes eco-regions are in decline, with five severely degrading. So what are our governments doing? Nothing. In fact we are falling backwards, as John mentioned. Since 1995 we have lost another major fish species for the Great Lakes. We've witnessed protection for native species coming under attack through takings challenges and proposals to weaken endangered species legislation. We have watched the U.S. approve a timber salvage rider that raided diseased and dead wood from public forest, under the guise of improving ecosystem health --completely contrary to what we know and what this board here knows about ecosystem science, but is allowed to occur.

And now in my home province of Ontario, the Harris government has launched Lands for Life or what I call, Leftovers for Life. This initiative will carve up 46 million hectares of Ontario's public forest, without the requirement to implement process recommendations before handing out long-term lease arrangements with forest industry. The ecological integrity of the Great Lakes has been broken. Whole populations of native fish, such as the yellow perch are mysteriously declining. Intentionally and unintentionally introduced species are having devastating impacts on native fish populations. In addition, efforts to prevent the loss of critical habitats is failing.

To protect biodiversity and ecosystem health, the IJC must act now. Some action steps will include: identifying policies that are detrimental, to intact fully functioning forces including a review of management practices on public lands; assembling inventories of protected areas of the forest estate within one year and reporting to the next IJC meeting on plans to complete the network of ecologically represented protected areas; monitoring and reporting on the government's commitments to actively control the population of sea lamprey and other exotics; and examining the ecological and economic impacts of intentionally maintained populations of exotic species -- the dumping of hatchery fish into our Great Lakes. We must establish goals that reflect the current state of knowledge for the rehabilitation and the restoration of native Great Lakes eco-regions, communities and species. There is much work to be done; let's get moving. Thank you.

Elaine Marsh, Great Lakes United

Commissioners, my name is Elaine Marsh. I'm from Great Lakes United as well. I am here to request that you expand your agenda and I am certain that when those people who discharge toxic substances into the Great Lakes basin hear that we are requesting that you expand your agenda, they will say, "When will it all end?" And we ask the same question as well, "When will it all end?" Four years ago, you also included nuclear issues. This year we are asking you to consider two additional issues. One is mining. I'm sure you are well aware of the toxic problems that remain because of the unreclaimed mine sites throughout the basin. Two of those that I would like to mention; One exists on Lake Superior's Keweenaw Peninsula in God's country. Another one on Ontario's Serpent River region. However, it is not only the unreclaimed mine sites that concern us. In addition, there are proposed mines which deeply concern us all.

In Wisconsin, the Exxon and Rio Algom Corporations are proposing a 25 year mine that will extract 55 million tons of copper and zinc from the headwaters of Wisconsin's Wolf River. It would produce nearly as much tonnage of waste. And they are proposing that the wastewater from this site be transferred out of the basin into the Wisconsin River, where it would enjoy less protection under that river system. Ontario has seriously weakened mine regulation requirements since 1995, exempting prospectors from environmental liability.

Therefore we make the following recommendations concerning mining: (1) That the IJC apply the provisions of Annexes 13 through 70 of the Great Lakes Water Quality Agreement to mining activities in each of the Great Lakes jurisdictions; (2) That they designate the Serpent River as an Area of Concern and fast track the development of a RAP for the Serpent River system; (3) And we recommend, that the IJC recommend that governments identify all abandoned and orphaned sites in the basin within one year and report to the next IJC meeting on plans to remediate sites.

The other item we request that you add to your agenda is that of sustainable waters. While the mine in Wisconsin is proposing diverting its wastewater *out* of the basin, in Ohio a diversion request of 5 million gallons a day is suggesting that they transfer wastewater *into* the basin in order to make up for water diverted out. At the same time, U.S. and Canadian mining companies are proposing diversions of 3 million gallons a day of groundwater. We believe that these are only the tip of the iceberg so to speak, in terms of diversions of the Great Lakes waters. We believe as we indicated in our recent report that there are very real threats to the integrity of the quantity of Great Lakes water and they include climate changes which will significantly lower the Great Lakes water levels; unlimited groundwater diversions which may soon become legal in the United States; and finally, and most importantly, the sale of water which may become a commodity as multi-national water companies establish a North American water market over the next decade.

And so, we have the following recommendations to the IJC: (1) That they establish a board with the status of the Science Advisory Board and Water Quality Board to draft and monitor a sustainable water quality strategy; (2) We also would like that the IJC personally review all applications or plans for withdrawals, diversions and consumptive uses of the Great Lakes water. And we would request that that would include groundwater as well; (3) We therefore recommend that the IJC recommend to the governments that they explicitly define groundwater as a part of Great Lakes water for the purposes of national laws. We believe that there is much evidence for this already in Annex 16. Clearly the IJC cannot fulfill its mission to restore and preserve the waters of the Great Lakes if it is not procedurally concerned with water quantity, as well as water quality. Thank you.

John Jackson, Great Lakes United

Our reports have arrived. The full report of "Treading Water," which I'll now pass to you, and as you will see in that, the assessment that was done by the Canadian Environmental Law Association, Great Lakes United and the National Wildlife Federation of progress under the Agreement. We are sure you'll come to the same conclusion that we did, when we went through this assessment. and that is: that the governments have not begun to complete their job and indeed are moving backwards in some respects.

And as a result of that conclusion, we recommend to you that you urge the governments not to renegotiate the Great Lakes Water Quality Agreement at this time. There is much to be done still and we are afraid of having time and resources diverted away from doing the job of the commitments already made in the Water Quality Agreement. We don't want to have resources diverted away from the critical job of implementing the existing Agreement. At our annual meeting of Great Lakes United in the beginning of June our membership unanimously passed a resolution saying that they did not want the Agreement renegotiated.

There is one item however, that we do want the IJC to assess. It is clearly unacceptable and bizarre, that we have a situation where the end of the Great Lakes and the St. Lawrence system is not included in the mandate of what is happening under the Great Lakes Water Quality Agreement. Currently, the Agreement's provisions end at Cornwall, Massena, and yet the St. Lawrence River which receives all the contaminants from upstream all the way from Lake Michigan and Lake Superior and all the way down, and its south in Montreal and other places, contributes to contamination of the St. Lawrence River, and from there to the ocean. **We ask you to assess ways to make sure that the rest of the St. Lawrence River and Quebec are included in the Agreement; it is absolutely critical.**

Finally, we just want to say that we appreciate the role the IJC has been playing over the past decade, at least. In terms of bringing forward very progressive and forward thinking ideas about how we can implement the Agreement -- what are the real implications of this amazing Great Lakes Water Quality Agreement; and we ask you to continue. We're confident you will continue in providing recommendations that move us forward to new understandings and new ways of dealing with the problems. And we also want to express to you our appreciation for having put on this forum, and we look forward to another one two years from now. The public really wants to be here, is coming out, we really want forums like this. So, thank you.

Chairman Baldini

Thank you, John, and thank you for your presenters. John, we always get thoughtful papers from you. Thank you very much, seriously. The next two presenters are Paul Muldoon and Lee Botts.

Lee Botts

Good afternoon. It's an honor to be able to present the results of an in-depth review of experience under the Great Lakes Water Quality Agreement at an event that celebrates its 25 year history. I'm going to describe the purposes, the methodology and the major findings of the review and then Paul will discuss the recommendations that emerged from our analysis of whether and why the Agreement has been effective and the reasons for our concerns about its future. One would have to wonder, given all the complaints that we environmentalists have been making about how not enough's been done, what is the *use* of this binational accord? Well, the project that we undertook was sponsored by the Institute on International Environmental Governance at Dartmouth College, where a lot of attention is being given to how to make arrangements for managing environmental matters across international boundaries. And they were especially interested in having a case study of the Great Lakes because its been so widely regarded as a model around the world.

Paul and I had three reasons of our own for undertaking this project. First, we do not think that the importance of the Agreement itself was appreciated. Second, we thought that perhaps a lack of a comprehensive history and a formal evaluation of its results was a factor in the lack of understanding about its significance. And finally, it seemed even more important to examine this experience because there seemed to be signs of major changes in processes that had evolved in its first quarter century, as we approach that anniversary. So those were the reasons why we did it. And we had three purposes in what we did. First, we wanted to document the history in detail. If you look at the number of footnotes in the report, you'll see how hard we tried. The second was to evaluate whether the Agreement has been successful, and to consider the reasons if it has been successful, why has it been successful. Why has it failed, if it has failed. And finally, we developed recommendations for how to maintain the strength of the processes of the Agreement to ensure that continued progress will be made in restoration and protection of the lakes.

Our methodology was pretty straight forward; usual thing. We interviewed a lot of people, over 80 people. And I want to take this opportunity, a lot of them in this room, to thank everybody for giving us so much time and so much information in many different ways. We reviewed documents -- boy did we review documents -- things that had been written about the IJC; analyses of the Boundary Water Treaty; read and re-read publications of the International Joint Commission and the government agencies; and we also became familiar with the current literature on international agreements, because there are a growing number of those agreements that concern the environment; and then, the other factor was between us, Paul and I have been involved over the whole history of the Agreement. Obviously my involvement began before his. But it dates from before the Agreement was signed in 1972. So we drew on our own experience and personal files. We had a lot of original materials collected over the years. It's true that we began with a predisposition to consider the Agreement a success, but we believe that we have backed up the view with the documentation and the evidence that we have assembled. We also used criteria that a political scientist named, Oren Young, who is one of the leading theorists about international agreements -- we used his criteria and applied them to the Agreement. And there's not time here to go into details.

We do have with us copies of both the full report and a short version which was done -- for those people who don't want to wade through the whole thing -- and see us and we'll see that you get these copies.

Major finding of the whole project was that the most important result of the GLWQA was the development of a unified basin-wide Great Lakes community in which environmental activists and government agencies' staff and many others share the commitment to its goals. Nothing would have happened if this community had not developed. Our analysis showed that the growth and effectiveness of the Agreement was fostered by features of the Agreement itself: its special characteristics, including the binationalism that governs its operations; the flexibility which allows new responses to new information; and the ongoing research whose results are shared throughout the community; and it's the processes around the Agreement that allow the sharing of the information, and allow the interaction, and allow us to complain about each other and then go out and all together fight for the Great Lakes.

The success of the binational accord is confirmed by its influence on the laws and policies of both of our countries, and by the strengthening of the political will of the Parties to the Agreement or the governments. The whole thing lasted a lot longer and proved harder than we thought when we started because even though we thought we saw signs of a weakening in the community when we started, we didn't anticipate how much things would change in the early 1990s. And we found that we had to give a lot more attention to exploring the reasons for the weakening of the strength of the community in recent years. Again, I want to thank everyone who helped us with the study. And Paul will now discuss the recommendations that we make to try to counter this trend of a weakening of the community and the reasons why we agree it is essential to maintain the Agreement substantially in its present form, maintain those processes that make the community strong. Thank you.

Paul Muldoon, Canadian Environmental Law Association

Thank you very much. I would like to do a review of the recommendations. What Lee didn't tell you is that we didn't really intend to release the study on the 25th year of the anniversary of the Agreement. In fact, we started so long ago, we thought we would have made the 20 year mark, but we're lucky we got it off at the quarter century mark. I'm not going to review every **recommendation**, many of them are technical in nature. But **let me review the five major ones**. The first one as mentioned already is at the next annual meeting, the Great Lakes Water Quality Agreement calls for a review of the Agreement in terms of whether or not it should be renegotiated. The recommendation of this report is quite unequivocal, in that no change should be made to the Great lakes Water Quality Agreement except to enhance its operations and progress towards its present goals. We really think the question now is of implementation and not to re-inventing a model which has not only worked in the Great Lakes basin, but has in fact been duplicated, and attempted to be duplicated elsewhere in the world. We think this is an international model for governance. And to try and play with that model now -- we're still trying to grapple with how to meet its goals and implement it -- would be a mistake. So our view is, let's move on with implementation, rather than revisiting the goals.

Now what Lee talked about was the important part of the Agreement which is something that is not in the words of the Agreement. The Agreement gives us goals and aspirations to maintain the physical, chemical and biological integrity. But what makes that work are the scientists, the public interest groups, local residents, politicians -- those are the people -- and all the other stakeholders in society, which really create the community, to keep governments accountable and to really make the cogs of that machine, of the Great Lakes Water Quality Agreement work. That community, the Great Lakes community, really is the guts of the Agreement. And what we're asking you, Commissioners is to make sure that that community is maintained and in fact enhanced.

Now, those are abstract words. How do we do that? And we try to outline that in the Agreement. But let me give you a few of the examples as we go on. But, those are the two key recommendations. Many of these recommendations though, are not just geared to you, they are geared to the governments. And one of the things we'd like in particularly to note, is recommendation four. And what we think is fundamental is that the IJC becomes and maintains its role of accountability towards governments. You are the voice of the people in the audience here as to what is going right and what's going wrong with the Agreement. You are the communication translators of our aspirations. Whether it be industry, whether it be non-governmental groups, or whoever.

We think you're doing a good job and we want you to maintain that. But to do that you need information, vital information. The citizen's presentation in my view gave an excellent idea of what you're hearing from the trenches of the Great Lakes. But you also need to hear the detailed data from governments, so that you can assess progress. And we don't think that that detailed concrete information that you need is coming. **So one of the recommendations**, is that you should describe to the Parties in as much detail as you can, of the kind of information that you need to undertake a proper assessment of the effectiveness of government programs. And we think that can be done in a formal way so that they know exactly what to submit to you every biennial cycle. Further, I think that not only must they give you the information, but the Parties should work and design these State of the Lakes Ecosystem Conference and other joint processes to provide you with the information. And in that way not only do they know what information you require, but the processes that are ongoing now can be geared to ensuring that you get that information.

A few others -- The other one deals with this: the International Joint Commission should create a forum for debating greater participation by representatives of non-governmental groups in the regime. Such as the creation of a citizen's advisory committee. We think that the once every two years of having input from non-governmental groups is fundamental. But I think that also understates the expertise, knowledge and experience of environmental groups and citizens across the basin. The question is, "How do you get that on an ongoing basis?" And we think it may require some institutional design changes to allow that to happen. And I think if it did happen, you would see that the quality of the information coming to you, just not every two years but continually, would rise exponentially.

And let me just end off with this. Is that the International Joint Commission should seek clarification of its relationships with the Great Lakes Fishery Commission and the Commission for Environmental Cooperation, and to consider taking a more active role in relevant international forums outside the Great Lakes. And that's really two or three recommendations in one. We think that the public is confused of who's doing what. The extent to which you can coordinate your activities with the other institutions in the Great Lakes and on the continent, that can go out and coordinate the workplans and try to present data which we all understand and more importantly which the public can understand, and get a clear voice of what's going wrong, what's going right.

Also, many of the problems of the Great Lakes are coming from outside of the Great Lakes, to the extent to which you can take an active role in participating influencing those international fora we think would be fundamentally important. Remind you that the 1998, there will be the commencement of the negotiations of International Protocol on the Persistent Organic Pollutants. That treaty will fundamentally affect the state of the Great Lakes. If the treaty is weak, so too will be the future of the Great Lakes. So we ask you to think how you can influence that, and bear down your experience and the experience under the Agreement to those negotiations.

Those are only a few of the recommendations, and I hope it does reflect some of the thinking and thought that we've put into it. I know you have copies of the report and please, feel free to ask questions at some point throughout the weekend and later on, if you have any inquiries on it. Thank you, very much.

Chairman Baldini

Thank you, Paul. Thank you, Lee. If people are interested in obtaining a copy they are to see you directly? Okay, thank you. Next our presenters, Sister Pat Lupo? Okay, students?

INTERNATIONAL JOINT COMMISSION
GREAT LAKES WATER QUALITY AGREEMENT
PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

ERIE STUDENT SUMMIT PRESENTATIONS

Jeff Newcamp, Student Delegation, Erie Pennsylvania

The Erie Student Summit came as a result, sort of like a dream, from Sister Pat Lupo, OSB of the Glinodo center, Kathy Horan and Sister Marguerita Dangle, OSB, also from the Glinodo Center. They, along with the help of many others and their encouragement, developed the 1997 Erie Student Summit. They received a grant to perform a pilot project. The grant came from Coastal Zone Management and the Heinz Endowment Fund. It entailed 13 schools and a community- based organization. A weekend long workshop was help at the Glinodo Center, northwestern Pennsylvania for all the students to attend with their sponsoring teacher. At the workshop, the students were taught about their watershed, its problems and possible solutions to these problems. Field trips were taken to the Erie area landfill, water treatment plant and wastewater treatment plant, along with several other sites of interest. The students saw what was occurring right in their own backyards. Eager to see what they could do in their community the students broke into nine teams, generally based on the school they attended.

Over a month and a half later, the students had grown in many areas and aspects. They had gone to the workshop over the summer with uncertainty of their power. Yet they came to the student summit presentations in early October, with determination. All the participants of the Students Summit worked and toiled with their group action plans and wanted their conclusions to be heard by the public. They discovered what they as highschool students could do in their own communities. The presentations were made with several local political leaders present. Certainly the students educated the public on the topics at hand, but they also taught themselves. Each of you out there today knows that when it comes to awareness, especially today's youth are important.

Furthermore, after the student summit, six students were chosen for their superior effort and dedication to the Erie Student Summit Projects. Those six students were selected to travel to the International Joint Commission, speak to you as a culmination of the Student's Summit. And here they are in front of you today.

If nothing else, we wish that you noted the time and exertion all the Student Summit participants have put into their projects and that you lend an ear to what we as tomorrow's future, have to say.

Andy Banducci, Representative #2

Each of the students representing the Lake Erie and French Creek watersheds was part of a group that did a project relating to their watershed. As part of these projects, the students were required to write a paper entitled, "Our Vision of the Great Lakes." There were nine different projects and there were nine different visions. What we tried to do for this forum was to take the most insightful parts of each essay and compile them into a larger more comprehensive essay. So here's our collective vision of the Great Lakes.

In the future there are two possible solutions that the Great Lakes might fall under. One is positive. It includes the overall use of alternative energy, sources such as geothermal energy, solar energy, wind energy as well as hydro-electric power; more state and federal regulations concerning industrial pollution and a good water quality, thus plentiful vegetation and animal life.

Our other vision is negative. Although we prefer not to think about it, if we don't press our governmental leaders and educate the public than the following situations could become reality. There would be a business as usual attitude among our governments; there would be a possible loss of vegetation resulting in a lack of biodiversity; industry would continually and/or deliberately ignore whatever pitiful attempt at regulation that the governments might initiate. [Applause] And both point and nonpoint sources of pollution, either by industry or the private sector would thus be rampant. This would ultimately result in systematic destruction of our watershed. Recovering from a disaster of this magnitude, would be nearly impossible to accomplish.

Katie Bloeser, Representative #3

Hello, I'm Katie Bloeser. The Student Summit consisted of 10 schools that were involved in 9 action projects, from Lake Erie and the French Creek watersheds. Cathedral Prep and Cathedral Center, Baywatch a Study of Water; Seneca, Recycling into Tomorrow; Meadville, Searching for AOCs; Millcreek, A Study of the Erosion in the Walnut Creek Watershed; Neighborhood. Our house, Nature Trail interconnects with Neighborhood Art House; Montessori, Spread the Word; St. Gregs, 16 Mile Creek Environmental Project; Vincent, Pollution Solutions, Getting to the Point of Nonpoint Sources; Villa Maria Academy, Is VMA Environmentally Friendly to Lake Erie Watershed?

Mai Phan, Representative #4

Hello, my name is Mai Phan. The nine projects presented at the Erie Student Summit may be nine different projects but our goals and objectives were the same. Each team participated in the August workshop to understand what a watershed was, in order for us to choose our projects. Much research was put into the projects to get youths and schools involved, to investigate the health of our watersheds and to promote environmentally-conscious, economic development. With the help of media coverage of the Student Summit itself, we were successful in alerting our community that what we do to our watershed has an effect. And we need to put into the environment what was taken out. Although each projects' goals and objectives were similar, the projects themselves were quite unique. For example, the Neighborhood Art House, a community-based organization for intercity kids came up with a plan to create a nature trail with organic materials to help the children at the Art House learn about the environment. In addition, the Art House kids will also learn about recycling and the purpose of the Art House itself.

The Walnut Creek area team observed that because of soil erosion their creek became very shallow due to the sun's penetration, raising the water temperature so much that the oxygen decreased, killing their game fish. Thus, they selected an area of the streambank that was eroded, to plant willow seedlings in order to monitor the seedlings growth and their effect on erosion. St. Gregs found at the end of their 16 Mile Creek, a borough sewage polishing plant. With much testing they hope to pinpoint the source of their pollution and to reduce it. One instrument they used was a petition which was circulated out into their community. Also they are in the process of meeting with their northeast town council to discuss the issue.

Seneca High School's project was to motivate their school to recycle aluminum, steel, plastic, glass and paper. They plan to have a kick-off assembly with a motivational speaker, and in each classroom, a paper collection box, and in the cafeteria, recycling bins. In order to educate the importance of recycling, they are developing a recycling education curriculum for K through 12. Hopefully with the success at the school level, they will work with the Green Township directors to motivate their community and beyond.

Our Presque Isle Bay is in need of cleanup due to pollution. With collaborative efforts from Cathedral Prep and Cathedral Center, Presque Isle Bay's water quality was studied, in order to inform the public as to its swimability. They performed chemical tests and analyzed the bay water to fresh catch rainwater and to runoff water of nearby homes.

The Montessori children's aim was to spread the word about cleaning up the Lake Erie watershed, about its condition and how to conserve it. Phone calls were made to parents to encourage them to recycle and to watch what they were throwing down the drains. In addition, to encouraging the adults, the Montessori children are performing skits to encourage the younger generation to protect the environment in our watersheds.

The French Creek watershed was monitored for hotspots and Areas of Concern. The team performed biological testings of the water and found that the creek was healthy. In addition, the team found from research the French Creek is recognized as the most significant natural resource in Pennsylvania and North America because of the variety of plant and animal life it hosts. So it is important to monitor and regulate the present and future French Creek.

Villa Maria Academy found their project right in their own backyard. Their soccer field had not been in use because of the collection of rainwater on the field that did not drain into a ditch. From observation, the team observed cleaning the ditch of debris would allow rainwater from the field to flow into the ditch. The team is now in the process of identifying solutions to the drainage problem.

Strong Vincent High School's aim was to excite our younger generation about cleaning up our watershed and to educate them about nonpoint source pollution. Thus the team developed an activity booklet. The 60 students who participated achieved their ultimate goals of becoming involved in monitoring the quality of their respective watersheds and in making the public aware of the need for all people to do likewise.

Dan Connolly, Representative #5

Issues Concerning Lake Erie and French Creek Watersheds. Probably the most important issue facing our watersheds is making the public aware of the different hazards that are threatening them. The public and the media's attention must be brought to the quality of water in each of these watersheds, which incidentally are separated by a land ridge. The French Creek watershed has a high quality of water and is rich in biological diversity. More types of fishes and molluscs are found there than any stream in the state of Pennsylvania. The stream contains over 70 species of fish and 25 species of molluscs, several of which are endangered in both the state of Pennsylvania and the United States. It is recognized as a significant natural resource and for this reason is important to monitor the creek and keep the public informed of its healthy state, to prevent pollution and other hazards from penetrating it.

The Lake Erie watershed has been threatened over the years by such hazards like solid waste pollution, nonpoint and point discharges and bank erosion. To prevent these contingencies from occurring even further, it is important that the community get involved in keeping Lake Erie in its best condition as possible. The public must realize that they are the largest beneficiaries of the Great Lakes and if they want constant water supply, or water recreational sports in the future, they must learn firsthand how to help Lake Erie. In order to implement this awareness to the public, education of these environmental problems, as well as of everyone's actions, effects and consequences must be presented to the youth.

Recycling is yet another issue facing our watersheds. The public must realize that everything they do affects the world around them. In conclusion, there must be a call-to-action that includes these issues and work toward a goal of preventing any further environmental hazards from permeating into our watersheds. We must remind ourselves that even though separately it may not seem we make a difference, but as a collaborative effort, great results will transpire.

Erin Ferguson, Representative #6

Everything that we do whether it is large or small, affects others in some way. Much like ripples in a pond, our actions have a strong impact. On October 8th, the youth of Pennsylvania set out to make an impact on our surroundings. For weeks we had been working on projects and now we would be showing everyone what we had done. Our projects had many impacts. Not only on the Lake Erie watershed but on ourselves, community and leaders. We are all amazed that young people could make such a difference in just a few short weeks. Many of the groups involved had not only gotten their families involved, but the community as well. We gained the respect of our peers, school administrators, government officials and our community. Many people also had to face and conquer their fear of public speaking in order to take part in this project.

Although this project has impacted just about everyone in different ways, I feel that this project has most affected our instructors at the Student Summit because this program is first of hopefully many more to come. The Student Summit took two years in the making. Grants had to be written, committees had to be formed and teams of leaders had to be chosen. All this for a two day program. On a personal note, our instructors believe that anyone can make a difference if they have the desire to do so. They also think as many of us do, that the program has been very satisfying, exciting and rewarding.

Years ago people believed that Lake Erie was dead. Pollution reeked the lake, fish were scarce and people just didn't seem to care. Most people don't even know that the pollution of Lake Erie could affect them all. But that was then and this is the present. Through many programs, much like the Lake Erie Student Summit, the community is starting to become more aware of their surroundings. Nowadays, Lake Erie has been brought back to life through programs and community outreaches. The Student Summit has brought on even more political pressure to not only better fund more programs such as ours, but to hear the youth of America and realize that they also want to take part in helping the earth.

Andy Banducci

As the students of the northwestern Pennsylvania Student Summit, encompassing both the Lake Erie and French Creek watersheds, we realize that we will not be able to objectively assess our work until long after this summit. One of the main focuses of our projects was public awareness. By alerting the public we felt we succeeded in getting the word out about the water quality of Lake Erie. As part of our self-assessment, we realized several things about ourselves, as individuals had changed. First of all, our problem-solving skills improved. We learned how to identify possible solutions. We gained respect from our peers. We can use team projects and take those on a step further to accomplish more independent study. We learned that sometimes, we have to change our immediate goals, if there's a time constraint. We affected adults to such an extent that they felt that they grew also. And perhaps most importantly, we enhanced our skills when working within a group.

In assessing the summit as a whole, we felt that we successfully accomplished the following things: After learning about our respective watersheds, we successfully involved the media to make the public aware of watershed issues; we successfully used technology to create multimedia presentations using Microsoft Power Point for each one of the nine projects; and our immediate goals were accomplished, although we realize that the overall success of the Student Summit has yet to be determined.

Jeff Newcamp

Throughout the Student Summit the nine groups focused on their action plans. Most of the plans involved some type of communication to the general public, in order to encourage environmentally safe practices. In order to spread their messages to the public of northwestern Pennsylvania the students utilized the media to its fullest extent. Three types of communication were involved with the Erie Student Summit. Those were as follows: printed, telecommunications and by word-of-mouth. For printed awareness, the Erie Student Summit participants appeared in the local newspaper and several other fine publications on many occasions. Topics of the articles varied, yet projected the same message about the actions plans.

In the telecommunication category, the students managed to appear on the three local television stations several times over. News crews were present at the Student Summer Workshop in August, group testing sites and even at the Student Summit presentations in early October.

The final division of awareness was word of mouth. Several of the Student Summit groups used this form to spread their message. They did this with the use of telephones, group assemblies or meetings, pamphlets and letters. The local politicians showed their support by coming to learn about the action plans, projects and visions the students had of the future, at the Student Summit on October 8th. They expressed their concerns for the Great Lakes water quality, especially that of Lake Erie. The students involved in the summit were able to personally meet these community leaders and share their special concerns for the area.

Other political leaders were contacted by mail. All of these fine accomplishments of the students in the Erie Student Summit helped them to learn about their watershed and their environment, their views on it as well as others, and what they can do to protect their environment. Without public awareness many of the projects could not have been completed as well as they were.

Katie Bloeser

In conclusion we would like to say that it is an honor to be given a forum to voice our concerns and our visions for the future. **We would like to leave you with a few recommendations** for the future of the Great Lakes watershed. Implement the Great Lakes Water Quality Agreement, continually get individual groups more aware, focus on groups to get them involved in their watersheds, continue to monitor water quality, encourage zero discharge of persistent toxic pollutants, awareness of nonpoint sources of pollution and sprawl, support grassroot groups throughout the basin, encourage governments to require an environmentalist on building projects, continuous education of the public on watershed issues, encourage doctors to keep records and statistics in order to show linkage between health and the Great Lakes environment, establish a deterrent system to encourage water quality; industries will be more accountable if the states demand it. And again, we would just like to say, "Thanks for listening."

Chairman Baldini

How do you follow that. Well, you follow it with another group of students. And we have also today with us, Tina Preston. Tina is down here. She also has a group of students from Buffalo. Tina, let me turn that over to you.

INTERNATIONAL JOINT COMMISSION
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PUBLIC FORUM

Niagara Falls, Ontario
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1997 GREAT LAKES STUDENTS SUMMIT PRESENTATION

Tina Preston, 1997 Great Lakes Students Summit, Buffalo, NY

Yes, I agree. Tough act to follow. Good afternoon, my name is Tina Preston and I am from Buffalo, New York. I am one of many coordinators of the 1997 Great Lakes Students Summit which was held in Buffalo this past May.

This is our Biennial Great Lakes Students Summit. The first one was held in May of 1995. We hope it will be one of many, many more students summits that will be happening around the Great Lakes basin for the many, many years to come.

In May of this past year, 225 students and their teachers from throughout the entire Great Lakes basin came to Buffalo New York from grades five through nine. At that time, they learned all about Great Lakes water quality issues, toured watershed in the Buffalo area. They shared their concerns, their projects, what they were doing, many were similar ones to those you just saw. Most importantly, they collaboratively got together and talked about what their vision is for the future, and their vision for 2022. We were very pleased to be joined by Commissioner Alice Chamberlin at that event and we wish to thank her once again for taking the time to be there with us. In addition to the staff, Doug Bondy and others who are so wonderful in helping us put our event together. We wish to encourage the IJC and both governments to facilitate additional events such as our and the one that happened in Pennsylvania. We think it is incredibly important and applaud your efforts to this point and couldn't stress enough the need for your support in the future.

Back in May, although our summit was two years in the planning, we originally intended to bring our message to Biennial Meeting in 1997 and many of you know in May, we didn't have a Biennial Meeting so we decided that if the IJC won't give us a vehicle for us to come to them, we'll invite the IJC to us, and Alice did join us which pleased us. We cannot say enough how thrilled we are that there is a Public Forum right now for us, our students to be heard and others to be heard, and citizens throughout the Great Lakes basin. Our students will be the first the tell you that the need for such a thing is incredibly important.

Our presentation is a little unique, so I request that you do the best to pay attention. We won't be at microphones to give it but I hope that you will listen. Not all the students could be here, all 225, although we sure wish they could. So they have requested that I bring their mascot which they carried throughout the 2-1/2 days in Buffalo and which became part of the whole essence and mission of what they were doing and why they were here. It is my honor to present to you an extraordinary group of young people who have worked very hard for the last two years and wish to present to you their vision for 2020 in regards to the Great Lakes Water Quality Agreement. Please join me in welcoming the 1997 Great Lakes Students Summit delegation.

[Presentation from floor without microphone -- summary follows]

1997 Great Lakes Student Summit, Our Vision for 2022

By the year 2010 we see an environment above and beyond the expectations we have now. We find pure water, fresh air, bountiful land, healthy food, and ecologically-conscious citizens. No longer will people accept pollutants to be released to the ecosystem.

By the year 2022 we see an environment cleaned of the pollutants from the past to a point where they will not be a threat to any living creature.

In order for our vision to become reality, we must take action now. With the concerns for ourselves and future generations, now is the time to set goals for solving the problems that we are faced with today and prevent new problems from arising. Our thoughts on what to do are:

- no more pollution after 2010
- complete recycling and reduced packaging in communities and businesses to stop any long-term wastes from going to landfills
- more respect for the environment
- clean rivers and streams and lakes for fishing and swimming
- plenty of preserved lands, wildlife habitats, and green spaces
- safe, beautiful cities to help stop more houses and buildings from being built where forests and farm lands are now
- clean, safe transportation methods that use renewable energy
- schools that teach by practicing ecological principles.

Our main goal is to convince The United States and Canadian Governments with the assistance of the International Joint Commission [IJC] to initiate the global effort to reach zero discharge of pollutants by 2010. Our main objectives are to have the IJC:

1. Within one year recommend and design planning seminars for the major polluting industries. These groups would be composed of members from the industries, governments, research labs, United Nations, and environmental advocates.
2. Participate in the planning seminars which will complete their work by the year 2000. The plans will include inventories of their pollutants, a timeline for reaching zero discharge, government incentives and deterrents, methods to share information, support for joint research, marketing ideas to support the industries, and ways to provide jobs.
3. Participate in on-going monitoring of the progress towards zero discharge.

Cleaning up current pollutants in the environment will take much longer but the goal of being virtually clean by 2022 is reachable. The IJC can help by setting specific goals and publicizing these goals.

In closing, we the participants of the 1997 Great Lakes Student Summit contend both the U.S. and Canadian Governments do everything possible to fulfill the vision put forth in the Great Lakes Water Quality Agreement.

Chairman Baldini

I thought sometimes you people made demands on us. I mean -- Woo! By the way, that vision statement is part of the time capsule so future generations, when it is resurrected in 25 years, that vision statement is a part of that time capsule.

I was sitting here thinking, when we first started 25 years ago, were we going to make any accomplishment and where are we going to be in 25 years from now. But with people out there already excited and involved very knowledgeable -- I think we have a very solid basis to move this whole process forward. Let's give them another round of applause, they were great. Also, I think we'll see these students again in two years.

We are now at that point in the program where we are going to open it up for comments. House lights please. As you know, we always take the opportunity to hear from the public in groups like we have just heard and also from individuals who have some comments, points to make, issues to bring before us. We We take those comments very seriously. We also ask that when you come to the microphone, you identify yourself and that you keep your comments as close as possible to a three to five minute timeframe. We also ask everyone else in the audience to be respectful of what other people have to say. That has always been something we like to advocate, is that we respect other people's rights to make comments on particular issues brought before us. You'll each have an opportunity to speak. Again, we ask that you treat one another as you, yourself would like to be treated. We have cards that were filled out this morning, there will still be opportunity for you to fill out cards if you want to speak tomorrow. I am now going to turn this over to these three gentlemen, Tom Behlen, Murray Clamen and Jim Chandler who will read off four names ...

Jim Chandler

I will be announcing the first four speakers which will give you time to get up to the microphones and move this along. There are quite a few speakers who wish to make statements today and we'll try to get in as many as possible. Those that MUST speak today will be called first.

INTERNATIONAL JOINT COMMISSION GREAT LAKES WATER QUALITY AGREEMENT PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

PUBLIC MEETING -- PART 2

John Vena, University of Buffalo

Good afternoon, my name is John Vena. I am a professor at the University of Buffalo. I am an epidemiologist and I do health effects research in the Great Lakes basin. I would like to say that there have been some initiatives that have progressed: health effects research, including funding from the Great Lakes Protection Fund on the U.S. side, as well as the Agency for Toxic Substances and Disease Registry which is the only U.S. basinwide research program focused on human health and persistent toxics. I would like to say that the Canadian program, also the Great Lakes Health Effects Program which I was on the advisory committee for, has also been instrumental in addressing research in this area.

I would like to have the Commission continue to tell the governments that dedicated funding for programs that are basinwide and integrate are really important to get at the issues. It seems that funding in this area is only done on a year-to-year basis. Really long-term funding is important to look at the transgenerational effects, but also if you want to look at the influence of how the pollution improvements have made on human health, we need to continue to pursue these health effects research programs on a long-term basis. Thank you.

Ann Mahan

I am Ann Mahan. This is the fourth Biennial Meeting that I have attended. At previous meetings, we have heard pulp and paper representatives claim that there is no demand for chlorine-free paper and that chlorine-free paper for high-quality reproduction can't be made. It won't hold up well on press, it isn't wide enough, it doesn't take the ink well enough, etc. etc. My husband and I recently published a book that was printed on chlorine-free paper with soy-based ink. Because North American mills, in spite of growing world-wide demand for chlorine-free paper, still don't produce chlorine-free paper for high-quality reproduction, we purchased our paper from a German company, Scheufelen, who incidentally produced *only* chlorine-free paper. This paper has 20% post-consumer recycled content, not re-bleached with chlorine and the rest of totally chlorine-free pulp.

We were present when the book was on press and a pressman spontaneously came up to us and said "you guys sure chose the right paper." The reason things have so smoothly is that this paper is so good. It runs well on press. It takes the ink beautifully. At least two other pressmen commented at other times about the high quality of the paper and how well it handled on press, and the high quality of reproduction it gave. Interestingly, this printer has been using other paper by Scheufelen for some time, not even for environmental reasons, but simply because it performed so well. So much for the assertion that this kind of paper can't be made. We urge you to stand firm in your call for the sunset of chlorine. Be wary when industry says it can't do something.

We are concerned that North American paper mills will eventually find themselves unable to compete in the changing world market and the regional jobs and economy will pay the price. One of the problems with the word 'can't' is that there is a price for not acting. President Clinton recently indicated that we can't afford to make the needed rollbacks in greenhouse gas emissions but the fact is we can't afford not to. The price of our inaction keeps growing while we debate. And while persistent toxic chemicals continue to accumulate and we debate what to do about it, the price tag magnifies. You already know success stories in which industries who clean up toxic processes find that they are actually saving money and often creating jobs. Our two countries traditional values embody a 'can do' attitude with innovation and creative problem solving, so please hold firm in the stand you have taken and ignore the word 'can't.'

Finally, I am disappointed with the position that the IJC has taken regarding incineration. Although your policy statement doesn't encourage the use of incineration, it recognizes it as an option in municipal solid waste management in spite of frequent calls from the public for a moratorium. Incineration does not accomplish virtual elimination and not zero discharge. It is totally incompatible with those concepts. It creates persistent toxics that weren't there to begin with and releases others in more toxic and bioavailable forms than when they started. There a number of references in the policy statement to control emissions, but controlling air emissions does not prevent persistent toxics from entering the environment. They simply enter from a different route, leaching from the ash. Incineration seems to be viewed as an alternative to landfilling, but as you know, incineration ash is still landfilled -- concentrated, toxic, leachable ash. There are so many problems with incineration, including its inherent incompatibility with recycling and its role as the largest source of atmospheric emissions of dioxins and furans, in spite of all the bells and whistles of best available technology. In this case, best is not good enough; incineration is completely incompatible with the goals of the Great Lakes Water Quality Agreement. So I repeat my biennial call for a moratorium of incineration of municipal waste, hazardous waste and medical waste. Thank you for listening. I hope the governments listen to you.

John Mahan

I am John and I am used to following her. I also marked four Biennial Meetings that I've been to. This one, I'll remember, because now I have to use reading glasses.

I am having trouble feeling as celebratory about the Great Lakes Water Quality Agreement as I really want to. True zero discharge lives only in our hearts and our slogans. Even the few pollutants that have banned are often replaced by equally damaging new chemicals because the onus for proof has not been reversed onto the Chemical Manufacturers where it has always belonged. For instance, DDT was replaced with methoxychlor, an organochlorine that we now know exhibits similar harmful characteristics. How much progress have we made in that instance? Meanwhile, evidence of harmed wildlife, humans, society and the economy continues to mount. Unfortunately, so does denial by the affected industry.

For six years, my wife Anne and I have been searching and writing a book on one of the Great Lakes. We have talked with many scientists in and out of the basin who are connecting the pieces in the puzzle, finding the links between toxic pollution, especially endocrine disruptors, and harm to humans and other wildlife. As thanks for this difficult work, many of them have had their personal and professional reputations attacked, their character maligned and research funding taken away. One has even related to us, an anonymous death threat just for going public with their research. Meanwhile the state, provincial and federal governments have been falling all over themselves in a race to the bottom. Attempting to roll back and gut the few protections we do have while enacting new destructive legislation. For example, audit privilege laws have been passed by 21 states and I understand are pending in about 14 more. Audit privilege laws protect corporations when they report their own violations of environmental laws. All information related to the self-audit becomes *privileged* and cannot be divulged to the public, or used as evidence in any legal proceeding, law suite or regulatory action. Who decides what information is protected? The affected, offending industry.

Audit privilege laws allow criminal corporations to self-immunize themselves against prosecution for their violations while depriving the public of their right to know. The U.S. Congress is now considering a federal audit privilege, Senate Bill S866, and its companion House Bill HR1884, and even though the known net loss of wetlands President has come and gone, wetlands are still being destroyed. The latest statistics I can get one-million wetlands that were lost between 1985 and 1995. This is important because we now know that nitrates are taken out by wetlands and we also know that nitrates act synergistically with atrazine and other organo chlorines amplifying their endocrine disrupting effects.

But I do have cause for celebration. I celebrate the courage, persistence and dedication of scientists to tell the truth in spite of the tremendous perils it places them in. I celebrate ordinary people who in spite of being treated as either obstructions or inconsequential by the governments insist on being heard. They are far more knowledgeable and capable than they are given credit for, and they are optimists. They believe they can make a difference and they can. I celebrate the beginnings of see-change in human consciousness in priorities. A change noted worldwide by any long-time observer of humanity. The movement appears to be from a mechanistic to an ecological world view from meaningless consumption to meaningful connection, from getting more to becoming more. The turmoil we find ourselves in appears to result from the clash between the dying and aborting world views. I celebrate the people that are driving the hopeful and necessary changes. And I celebrate IJC Commissioners, past and present who continue to speak truth to power, again, again and again.

In that spirit, I ask you to do the following:

- one, clearly and assertively tell the governments that it is time to fully and rapidly implement the GLWQA in its entirety, especially virtual elimination of PTSs, via zero discharge
- again, call on the governments to implement the philosophy of reverse onus, so we don't continue to add new toxic problems faster than we can solve the old ones
- three, repeat and renew the call for sunsetting the use of chlorine as an industrial feedstock
- four, call on the government to enforce and improve existing land protection laws for a true no-net-loss of wetlands result
- five, call on the Parties to increase public access to the governments in corporate and environmental records with expanded right-to-know laws while eliminating right-to-know-nothing laws such as the audit privilege law being considered now.
- Stop giving qualified approval to incinerators as waste treatment technology. Incineration is not waste destructions, it's just another avenue for pollution dispersal and it is wholly incompatible with the GLWQA and virtual elimination.
- Finally, call on governments to use their immense buying power to affect change. For instance, the governments could and should purchase only chlorine-free and recycled paper. This would provide an immense economic stimulus for appropriate change.

Thank you for your time.

Tanya Cabala, Lake Michigan Federation

Hi, I am Tanya Cabala with the Lake Michigan Federation. The Lake Michigan Federation is a 27-year old environmental organization that worked on Great Lakes environmental issues with a focus on Lake Michigan.

We would like to alert you to what we believe is an emerging issue in the Lake Michigan basin and possibly in other Great Lakes areas, directional or slant drilling. Directional drilling for oil and gas is a procedure where companies construct a pipeline, at first vertical, then horizontal so that companies can, as an example, drill under lakes.

The Lake Michigan Federation has numerous concerns about the potential negative impacts to the Lake Michigan shoreline from this type of oil and gas exploration and production. There are human health issues, since hydrogen sulphide, a toxic gas that is present in many oil and gas deposits.

We are also concerned about contamination of groundwater and tributaries from hazardous wastes associated with drilling activities. Lake Michigan's shoreline habitats, dunes and wetlands are fragile and already degrading due to development and other factors. What are the impacts of oil and gas production activities on these sensitive and valuable habitat?

Most importantly we are disturbed that the potential for proliferation of fullscale production sites along the Lake Michigan shoreline without a comprehensive assessment of damage to the Lake Michigan ecosystem. In Michigan, small scale directional drilling has been permitted in recent years in various locations on the Lake Michigan shoreline and along Lake Huron. Last Spring, the largest proposal yet was made by a Canadian company to directionally drill for oil and gas beneath Lake Michigan. The proposal sparked intense public debate leading to public meetings and an evaluation of directional drilling along Great Lakes' shorelines by Michigan's Environmental Science Board, a panel appointed by Governor Engler. That evaluation, while moving in the right direction, still falls short of providing a comprehensive framework for addressing the environmental, social and economic issues related to permitting onshore oil production facilities. A framework is necessary, given the potential for additional proposals to drill beneath Lake Michigan and Lake Huron. According to Michigan Department of Environmental Quality, at least 20 to 30 more drilling proposals are anticipated.

Annex VIII of the GLWQA outlines specific programs and measures for development and implementation by the Parties in order to prevent discharges from oil and hazardous polluting substances substances to the Great Lakes from both onshore and offshore facilities. It has been 25 years since Annex VIII has been developed. Have these programs been developed and reviewed? Are they adequate? Because of the exploration of energy development in the Great Lakes, particularly in Michigan, we urge the Commission to review Annex VIII and the Parties' programs and make recommendations for improvement if necessary.

Thank you very much.

Edith Chase

My name is Edith Chase, citizen of Ohio. We've made progress in the last 25 years. How much more can we accomplish in the next 25? Today, we need to share a vision or we will share the consequences. How much will it cost for a clean Great Lake? The right question is how much will it cost for children with three point lower IQ? Or more people on welfare or in jail? Or added health care expenses? To control the pollution in the Great Lakes so far we have tried to stop a waterfall at the top. There can only be frustration in our plans to clean up contaminated sediments while the same contaminants are released to our air, land and water.

The damage to public health from PCBs, mercury and other PTSs is well documented. I ask the IJC and governments to focus their full attention on resources on virtual elimination of PTSs. We need to think in terms of results and performance and measuring progress toward our goals -- our Treaty obligation.

We need to emphasize pollution prevention, lifecycle costs, close-looped systems, renewable and resource conservation and efficiency. Also, I ask that we integrate atmospheric deposition into these plans. A healthy economy and a healthy environment go hand in hand. The benefits to Ohio's economy can be measured even in dollars. The Ohio Department of Development reports that in 1996: the travel and tourism industry, just in the Lake Erie county, accounted for $3.08-billion; total direct employment 94,000 jobs; total direct payroll $125-billion; total tax receipts by local governments $3.68-million.

People in Ohio and visitors are attracted to clean water and attractive communities along the Lake Erie shoreline. The benefits also include quality of life and health for future generations.

I ask that the IJC place a central focus on human health in RAPs and LaMPs for the next two years. We need a set of indicators, monitoring and surveillance, reporting to the public the results achieved.

I thank you for holding this public forum and am looking forward to a report on the progress during the next forum two years from now. Thank you.

Wayne Schmidt, National Wildlife Federation, Director, Ann Arbor

Thank you Commissioners. My name is Wayne Schmidt representing the National Wildlife Federation. I am Director of our Great Lakes Office in Ann Arbor.

It's appropriate as we gather here this weekend to brag about our accomplishments of the past 25 years. Last night, some of us went down to the Falls and stood there soaking in the mist and thunder of that Great Lakes spectacle. What we discovered was that if you stand in just the right place in front of one of those spotlights and wave your arms, you can actually see your shadow projected on the face of Horseshoe Falls.

For decades we have watched government leaders stand in the spotlight and wave their arms, make grand promises to restore the Great Lakes, on toxics, on air pollution, on Lake Superior, on virtual elimination, yet I have to tell you that once that spotlight dims, it often feels to many of us as if these promises are as ephemeral as our shadows on the Falls. Just this morning, with the ink barely dry on the Binational Toxics Strategy, we heard Canada backing away from its commitment to a 90% reduction on mercury emissions -- circumstances have changed, we're told. It's no wonder that the energies of the Great Lakes community today are sagging. That's why it is essential for our renewal, for us to appreciate the progress to which all of us have contributed for the past 25 years. Whatever the magnitude of our disappointment, our part on this Earth is better off for our collective work in these past 25 years, and our children and the seventh generation will benefit from our work. Having celebrated our progress, however, the Commission must keep a spotlight on the governments.

As Commissioner Béland said this morning, being the lead advocate for accountability. You did that well last month on the Detroit River. That's one good example. We thank you for that. Keep that spotlight focused on this magnificent river, and especially on those who have leadership responsibility, that leadership which as you correctly pointed out, which is lacking. Michigan's Governor Engler, and the U.S. EPA, in particular. This is typical of many of the seemingly intractable Great Lakes problems that we face around the region. In Detroit, we have a plan for a new Tiger Stadium; that's going to happen. We are going to have a plan for a new casino; that's going to happen. We're probably even going to get a good plan for brownfield redevelopment; even that's eventually going to happen in the city. But as we approach the 300th Anniversary of the founding of the City of Detroit, where's the plan for restoring the Detroit River? That river that Cadillac called the region in the earthly Paradise of North America.

Some of my NWF colleagues this weekend will offer you additional recommendations and obviously you have heard recommendations to build several feet over the last year of your listening, on air toxics, on Lake Superior, and on the paramount importance of keeping the Commission's focus and all of our focus on endocrine disrupting chemicals in our environment. I wanted to emphasize just one in conclusion: Our progress has been possible because of the Agreement. It brings voice and official commitment to the vision and aspirations of the people of the United States and Canada. Our message to the government, in particular, the U.S. State Department, is this: The Agreement is not broken, don't try to fix it, just do what it says. Thank you.

Jack Weinberg, Greenpeace

Thank you Commissioners. My name is Jack Weinberg. I am a senior toxic campaigner with Greenpeace. This is now my fifth IJC Biennial Meeting. I started attending Biennial Meetings in 1989 in Hamilton, Ontario. That was before I was working with Greenpeace. And that was certainly a turning point in my life. There were two things that were happening at that meeting: on the one hand, the information coming from the IJC Science Advisory Board, coming from the research community of the Great Lakes was very clear. Not only were fish and birds and other wild things being seriously impacted and destroyed by persistent toxic pollutants, but this was also affecting humans and our future generations. That evidence was sufficiently clear in 1989 to galvanize a whole movement in the Great Lakes basin. That was the bad news but the good news was the perception that we had an International Joint Commission that was willing to listen, was willing to act, was willing to take the Agreement's notions and help magnify them. Those two things together ignited a very powerful citizen movement around the Great Lakes. The message of that movement was that the issues of persistent toxic pollutants require not a quantitative solution that a good emission limit values, better controls, better management, better risk assessments, but a qualitative solution that as we identify the things that are causing these problems and then we change our practices and don't do those things anymore. That was the idea of zero discharge, that was what the idea of virtual elimination at that time, meant to the us and meant to the Commission. For the years after that, there was growing movements saying that we have the ability, we have the power, working with this Agreement, working with these Commissioners to make a difference. That was very exhilarating.

I would say that in the last several years, we've lost our way, and I feel that much of the discussion that I've heard so far at this meeting reflects that. That movement is no longer as powerful as it was. Many of those people are still there, but they've been discouraged. The discussions are now again exclusively quantitative and the qualitative ideas are put at the end of the sentence for rhetoric for those people who still are so silly to think those solutions matter. We were talking then about a range of persistent toxic pollutants affecting the Great Lakes. Now we can't, we're debating: Is PCBs, DDT and mercury a source of harm and maybe we should, and maybe there's even caution to go beyond those three., and even there, we're still debating -- Have we demonstrated harm from them? I think we've gone way back. I think it's a sad day. That's my negative side.

But I also have a positive story to say. The positive story is that the messages that came out from the Great Lakes are now reverberating worldwide. There are global negotiations, global momentum, and global interest in the whole issue of persistent organic pollutants as a global problem and a global phenomena. Maybe one of the reasons we stumbled is that we had a problem in our ecosystem in our region that required a global solution. That may be what overwhelmed us. Well, now thankfully, there is motion toward a global solution. I very much hope that that motion toward the global solution which we very much helped trigger, the information, the research, the dynamics that came out of the Great Lakes understanding. But I know, as sure as I am standing here, that while there's a lot of positive things moving toward a global solution, unless there is a reinvigoration of energy out of this region, that too will stall. We've learned, we've gone through this. So my plea to the Commission, my plea to my colleagues here, is however discouraging the last few years have been, however much we've stumbled, it's time forward again. I think the ideas are simple: persistent toxic pollutants is not a quantitative idea, its a qualitative idea. It's not a discussion of how to manage the risk, or how to control, or set an emission limit values, or figure out how much is safe, or what the environment can absorb, or what's the assimilative capacity. The idea is to identify the practices, the products, the materials, the processes that are the source of this problem, and then in an orderly and just way, carry out a transition to stop doing those things and move toward the cleaner production systems to allow us to thrive on this plant. If we don't do that, I believe as I did in 1989, and I believe there is no information that's qualitatively changed since 1989, although we can study it some more. I believe that what's at stake is the viability of our future generations. That is your task, that is your responsibility, that is our responsibility and I certain hope we can live up to it. Thank you.

Kathleen Evans, Muskegon Conservation District

Hello, I am Kathy Evans. I live in Muskegon, Michigan, where we have two Areas of Concern. I work for the Muskegon Conservation District and I serve as staff for our Remedial Action Plan Coordinator, the Muskegon Lake and the White Lake Public Advisory Council. I participate in the RAP process also through the Statewide Public Advisory Council for Michigan's Areas of Concern, and also in the LaMP process on the LaMP Forum for Lake Michigan.

Our local Public Advisory Councils have remained very committed to the RAP process since we began the formation back in 1989 and 1990. IJC should be commended for their assistance in helping us to form our Public Advisory Councils and lend credibility to that effort. IJC has been instrumental in making sure that they were formed and continued. What we've done over the past few years is use some partnership approaches. I consider the Public Advisory Council to be one of the partners, but we also have many other partner who have served on the Public Advisory Council. We've worked with the Lake Michigan Federation, NOAA's Great Lakes Environmental Research Lab., our intermediate school district, and Grand Valley State University's Water Resources Institute. We work with youth volunteer corps, business, local governments, and local sportsfishing groups in order to implement Remedial Action Plan projects.

We've begun to view the agencies now as partners. We do have valuable communication processes which enable that with the LaMP Forum as well as with the Statewide Public Advisory Council. We're looking at the Great Lakes Commission, and the Michigan DEQ and U.S. EPA as partners because we continue to struggle with funding problems. The partnerships are working in a sense, but it's not enough and we would like to see those agencies more in a leadership capacity, but also as partners.

The public needs to see that consistent moving ahead, moving forward process, not the hit-and-miss kind of thing that can happen when you are solely relying on the partnership projects.

I am here also to speak on behalf of Michigan Statewide Public Advisory Council. I would like to briefly go over what that is and the five priorities for Michigan's Areas of Concern that we would like to request the IJC to seek effective means of addressing. The Statewide Public Advisory Council is a group of citizens who represent Michigan's 14 Areas of Concern. The Council was established in 1991 to provide advice and input on all aspects of the statewide program, which is the AOC and LaMP programs, including program priorities, policies, public participation strategies and technical issues relevant to all 14 AOCs. The five priorities for which we request the IJC's support:

- First, that Remedial Action Plans be a priority for the relevant federal and state agencies. Staff, technical support, funding assistance must be adequate to continue progress in developing and implementing the RAP. Responsible agencies should proactively seek opportunities to use their authority and programs to implement the RAP and advance watershed goals.
- Second, we ask that the IJC help to ensure adequate technical, financial and regulatory support for addressing critical environmental and human health problems in the AOCs. Such problems include combined sewer overflows, leaking septic systems, contaminated sediments, state designated sites, Superfund contamination sites, human exposure to toxic substances, habitat loss, and nonpoint source pollution.
- Third, RAP goals should be incorporated into landuse planning and policy initiatives. Critical watershed management issues, such as nonpoint source pollution, soil erosion, habitat protection and sewage disposal should be addressed as part of a comprehensive landuse planning at the state and local levels.
- Fourth, the IJC should promote consistent environmental standards throughout the Great Lakes

basin. The long-term health of the Great Lakes depends upon a consistent approach from one jurisdiction to the next, in terms of laws, policies and regulations.

- Last, we should utilize the RAPs as mechanisms for promoting community-based leadership for environmental protection and AOC watersheds. Of particular importance is building partnerships among federal, state and local agencies, community organizations, business and industry, resource users, and the non-profit community. State agencies should be encouraged to incorporate partnership agreements into environmental restoration and protection activities.

Thank you.

Connie Bimber

My name is Connie Bimber. I'm from Painesville, Ohio. I would like to yield to **Russell Bimber** who has personal knowledge of a chemical dump 30 ft. from Lake Erie that the Ohio EPA is in denial about. He would like to make suggestions as to some causes for already observed diseases in Lake Erie fish and amphibians related to these chemicals.

Russell Bimber

Thank you. I have spent 30 years working mostly with chlorinated organic compounds, some of which are among the very compounds of greatest concern, bioaccumulative organics that build up in the foodchain to the IJC. The IJC's 1995-97 Priorities Report notes on page 16 and 17, the importance of finding the missing links to *prove* the cause-effect relationship between the presence of chlorinated organics building up in the foodchain and the harmful biological effects which have been observed.

A speaker at the Lake Erie Conference in September showed that retarded eye development associated with bioaccumulative, that is fat-soluble organic chlorine compounds, was also associated with the loss of Vitamin A. I've spent 40 years working with chlorinated organics and other organic compounds and the primary mode of destruction of all organic compounds in the environment is reaction with water, because water is so pervasive and its availability at the surface of the Earth is continually renewed by precipitation. The bioaccumulative materials bioaccumulate because they are selectively soluble in fats and thus protected from reaction with water. Water-soluble chlorinated organics do not bioaccumulate. Because these materials accumulate in fat and are protected against reaction with water, they are likely to react with other materials which are also fat soluble.

At the Lake Erie Conference in September, a speaker showed retarded eye development associated with some of these fat-soluble organics was also associated with the loss of Vitamin A. I believe the missing link in this case is a coupling product which results from a reaction of hydrochloric acid between Vitamin A where hydrogen is taken off, and the chlorinated organic where a chlorine is taken off. Similar loss of Vitamin D which is also fat soluble may account for eggshell thinning and breakage, and retarded bone growth. A similar loss of Vitamin E which is also fat soluble can account for impaired muscle development and some of the reproductive failures. A similar loss of Vitamin K which is fat soluble, associated with blood clotting, can be the cause of hemorrhaging, and so on. Many sex hormones are also fat soluble. Their loss can account for many of the hormonal effects and some of the reproductive failures which have been observed. A simple solvent extract of fatty tissues with a solvent, like methylene chloride or chloroform should contain the coupling compounds which are the missing links. Knowing this, it is a simple matter for an organic chemist to use liquid chromatography or similar procedures to isolate the missing links and structurally identify them by such things as nuclear magnetic resonance and mass spectrometry.

With one minute remaining, I would like to jump on to a chemical dump left behind at the edge of Lake Erie by my employer. I would have to correct my wife slightly. This dump is roughly a one-acre site which contains 3 to 3-1/2 million pounds of organic waste, two-thirds of which is liquid chlorinated organic solvents. My employer told Ohio EPA that it had buried six cars in about 195 drums of hexachlorobutadiene, that is a category 2 pollutant in your booklet, in this dump. It also said that it had buried more 57,000 gallons of liquids, about half carbon tetrachloride, and half sulphur dichloride from a shut-down carbon tetrachloride plant. It also buried some 516 drums of chlorinated parafins. These are viscous, sticky materials, easily dissolved in some of the solvents in the site, which might help spread them. These three materials are all commercial materials -- that is a result from full-scale commercial production -- yet the Ohio EPA's RIFS plan on this site acknowledges only small quantities of laboratory materials, typically less than five-gallon containers, having been buried on this site. Now as I just told you, more than half of the poundage of materials on this site is a result of full-scale commercial production according to what Diamond Shamrock told Ohio EPA. Furthermore, another quarter of the materials on this site are from semi-commercial production. They include about 900 drums which are filled with fluffy material weighing only about 300 to 350 pounds each and if they should get into the Lake Erie intact, they would float low in the water and become a serious hazard to boaters.

I thank you for your attention.

Bill Borden, Lake Michigan Federation

I'm Bill Borden. I am the Executive Director of Lake Michigan Federation. I have been handed an announcement that people dealing with the aftermath of the Hamilton PVC fire and some others, there will be a strategy session with Great Lakes activist, Lois Gibbs that will take place at 3:30 -- about 20 minutes from now down in the display area.

You've heard earlier from folks who are involved with Lake Michigan Federation. My roll today is to urge the IJC to stay its course of environmental protection and to recognize that the IJC remains one of the few institutional voices remaining that speaks for clean water and healthy Great Lakes ecosystems.

Much has been written about the so-called devolution of environmental regulatory authority from the federal level down to the provincial level and the state levels. In some cases, states can and do a better job of environmental protection, particularly within a state's boundaries. Minnesota, for example, having introduced a host of pollution prevention and regulatory measures leads Great Lakes states in clean water initiatives. You might know that for years, Minnesota has used TRI data to establish fees, based on volume and types of toxic substances released with resulting revenues providing both the disincentive disincentive to pollute and a source of revenue for technical assistance programs. It is a breakthrough project that they started years ago. But alas, examples like this are in the Great Lakes, exceptions to the rule. The Crystal River case for example, pitted the Michigan DNR against the U.S. EPA. Essentially, a Michigan firm sought permission to fill wetlands near the Crystal River in Traverse City. The permit which was opposed by virtually every conservation group in the midwest, including Lake Michigan Federation, was ultimately granted by Michigan DNR, while EPA recognized this malfeasance and they revoked the DNR's permitting authority in the case, then the Michigan Governor called the White House to intervene. The White House chastised the EPA's regional administrator in Chicago. EPA then reversed itself, declaring that the Michigan DNR did indeed possess appropriate authority. Clearly, clean water must transcend political favours. The IJC must maintain its vigilant, independent watch over those industries and governments that would dismantle the Great Lakes ecosystems and the water that supports them.

The IJC remains an independent voice of reasoning. Those who support clean air, clean water and healthy habitats, turn to the IJC for strength and support. Finally, a challenge to everyone in this room, and everyone at this conference, to work together to the future, that is.

Just to reiterate a few comments that were made earlier today from Dave Ullrich of U.S. EPA. Talking about creating a new generation of environmentalists, we heard from the students summits some inspiring, motivating words that make sense to carry us into the future. We heard from Lois Gibbs out in the lobby that we must turn up the heat, not just on the IJC, you folks have had enough heat -- well, maybe you could use a little more -- but we all must turn up the heat on every politician and every government agency, and every province and every state and town, every burg. Finally, Lee Botts who has called for a more cohesive and inspired Great Lakes community. This will require new messages from us to attract new people and new leaders like to folks we heard from earlier today, and new ideas for change.

Laura Mowat and Candace Sharpe

(Mowat) Hello, my name is Laura Mowat and this is Candace Sharpe. We are senior students at White Pines High School in Sault Ste. Marie, Ontario. Sault Ste Marie is one of the only cities its size in Ontario that does not have or has not had an opportunity for its citizens to dispose of their household hazardous wastes. Our goal is to establish a permanent disposal storage site along with a paint exchange. We are asking for your help, any help you can provide in urging our municipal government to realize the necessity of this site and locating further resources for ourselves and our city.

(Sharpe) Our campaign started five months ago when we petitioned in the local mall. The response was good, as we received approximately 500 signatures. In the past five months, we have spoken to our mayor, CAO and have presented to city council. Presently, working with Bob Olsgard of Lake Superior Alliance, we are continuing our research and petitioning. In January, we plan to return to city council with our full proposal. Please instruct the Ontario government to provide leadership and added resources for pollution prevention for Lake Superior communities like Sault Ste. Marie. Thank you.

Tom Baldini, U.S. CoChair, IJC

We've reached that bewitching hour (somebody said I should say in honor of Halloween). We will reconvene here again tomorrow morning at 9:00 a.m. to hear from our boards. Again, I remind you about the time capsule ceremony this afternoon being held up river at Fort Erie. We have buses out front and also maps in case you're driving, but the buses will leave at 3:30. I also want to remind you once again about the dinner this evening. Some of you have not picked up your tickets. I don't know if any are left, you'll have to check at the back. Buses will leave at 5:00 p.m. from the lobby for the dinner.

Ladies and gentlemen, I want to thank you all for coming, for being so attentive and participating, we stand in recess until tomorrow morning at 9:00 or the dinner this evening.

Thank you.

INTERNATIONAL JOINT COMMISSION
GREAT LAKES WATER QUALITY AGREEMENT
PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

GREAT LAKES ADVISORY BOARD PRESENTATIONS
Sunday, November 2, 1997

L.H. Legault, Chairman, Canadian Section, IJC

... Chairman of the Canadian Section of the IJC. I trust you all enjoyed last night's dinner and what I thought was a very impressive presentation by our two distinguished guest speakers. We're going to move directly into presentations by our Boards. We have four boards, as you know. Each will have 30 minutes for their presentation. Each is allowed time at the end of the presentation for questions and discussion. We will hear first from our Water Quality Board, then the Council of Great Lakes Research Managers, followed by the International Air Quality Advisory Board, and last by not least, our Great Lakes Science Advisory Board.

Some of the presentations this morning will be French, so we encourage you to pick up a head set from the interpretation folks at the booths at the back of the room. I am going to turn the floor over now to the Water Quality Board. I have the pleasure to introduce Vic Shantora, Dave Ullrich, Tracy Mehan, Kelly Burch and John Hartig. Gentlemen, would you proceed with your presentation?

GREAT LAKES WATER QUALITY BOARD
- *Vic Shantora, Canadian CoChair, Water Quality Board and Director General, Toxic Pollutant Prevention Directorate, Environment Canada*
- *Kelly Burch, member, WQB and Chief, Pennsylvania Department of Environmental Protection*
- *Tracy Mehan III, member, WQB and Director, Office of the Great Lakes, Michigan Dept. of Environmental Quality*
- *David Ullrich, U.S. CoChair, Water Quality Board*
- Questions and Answers

COUNCIL OF GREAT LAKES RESEARCH MANAGERS
- *Harvey Shear, Canadian CoChair, CGLRM*
- *Jeffrey Reutter, U.S. CoChair, CGLRM*
- Questions and Responses

INTERNATIONAL AIR QUALITY ADVISORY BOARD
- *Donald McKay, Canadian CoChair, IAQAB, and Atmospheric Environment Service of Environment Canada*
- Questions

GREAT LAKES SCIENCE ADVISORY BOARD
- *Tony Wagner, Canadian Cochair, Science Advisory Board*
- *Theo Colborn, member, Workgroup on Ecosystem Health and World Wildlife Fund, Washington, DC*
- *Michel Fournier, Cochair, Workgroup on Ecosystem Health, and National Institute for Scientific Research, Montreal*
- Questions

Alice Chamberlin, U.S. Commissioner, IJC

I would like to just for a minute continue on what Tim introduced which is to mention the gratitude and thanks to the Boards for their presentations this morning. I think you can see from the depth and the breadth of the presentations that the Boards are truly the eyes and ears of the International Joint Commission. They are our best links to all kinds of communities, to governments, to scientific experts, and most importantly to the public. So on behalf of all the Commission, I want to thank the Boards for their ongoing work and for their presentations today. Thank you very much.

It is also my pleasure to reopen the Public Comment Period this afternoon. I know we are running very late and our staff wants me to let you know that the restaurant is still open for those that can't miss lunch. We would like to continue our work here this morning. We are anxious to hear from all of you who have signed cards to speak. We want to say that we appreciate the respect that all the speakers have been given in the course of these two days. We're looking forward to a very good afternoon of communication with you.

Our first presentation this afternoon will proceed the open microphone and public comment period. It is my honour to introduce Maxine Cole and the First Nations and Native Americans who are going to speak to the Commission and to the audience that's here. Welcome, we are looking forward to your presentation. After that, we will begin the process of hearing the public's comments and that will be orchestrated from the cards that you have all signed. Thank you. Welcome. We are anxious to hear from you.

INTERNATIONAL JOINT COMMISSION
GREAT LAKES WATER QUALITY AGREEMENT
PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

GREAT LAKES WATER QUALITY BOARD

Vic Shantora, Canadian CoChair, Water Quality Board and Director General, Toxic Pollutant Prevention Directorate, Environment Canada

My name is Vic Shantora. Thank you very much Commissioner. It is indeed a pleasure for us to have this opportunity to present to you and other guests here today an overview of the Water Quality Board's activities over the last two years.

David Ullrich, on my right, is my CoChair from the United States and he just joined us two weeks ago, so we are using this as a test case for him -- to get up to speed -- and he'll be doing a wrapup at the end. Kelly Burch and Tracy Mehan will do part of the presentation.

If I may, we have a good number of Water Quality Board members here and what I indicated to the Board members up here is that we will answer the easy questions and those folks down there will answer answer the hard questions. So I would like them to stand up and be acknowledged. I won't go through everybody's name but please stand up so folks can identify you. Thank you.

As you will note in the 1995-97 Priorities Report, the reference to a number of the wide-range of issues that the Water Quality Board [WQB] has been dealing with and what I'll do over the next couple of minutes is just run through some of the highlights and then we are going to pick on two specific areas: contaminated sediments, and beyond compliance, which Tracy and Kelly will pick up on.

In terms of the range of issues, let me give you a sense of what we've been doing:

- **Overcoming Obstacles to Sediment Remediation**. We prepared a white paper wherein we recommended that the IJC needs to take an active role in helping to overcome some of the obstacles, a value-adding role, as we've called it, to help sediment remediation move along. There have been some good news stories and some areas where progress has been slow and we believe that the Commission can add its weight to the debate, to the dialogue, take benefit of some good new stories in some of the RAPs and help impart the message around the basin.
- **Significant Sources, Pathways, Reduction Elimination Strategy for Persistent Toxic Substances.** Here the International Air Quality Advisory Board will cover the substance of that; we cosponsored work with them over the last two years, and Tracy will pick up on the specifics to do with beyond compliance initiatives.
- **Uniform and Fully Protective Fish Consumption Advisories**. As you know, different jurisdictions have different ways of reporting fish consumption advisories. We've pulled it all together and made some recommendations as to how to make this whole process much more uniform.
- **Department of Defense, Sale of Mercury**. This has been a watching brief for the WQB and will continue to be. We are particularly pleased to note Bob Perciasepe's comments yesterday, that the sales of mercury continue to be suspended and as and when the environmental assessment work comes to light, we'll certainly be keeping an eye on that, and be ready to advise Commissioners on

future directions.

- **Future of RAPs**. Here, another white paper. A major recommendation was that we should be taking a step-wise and incremental approach to monitoring and tracking RAP progress. It's not good enough to just talk about Stage 1, Stage 2 and Stage 3. That's the bureaucratic way of doing things. In fact, there's lots going on that isn't being reported on, and we need to acknowledge that, and we need to encourage that step-wise approach be followed. Two weeks ago, in Thunder Bay, we held a public meeting with the local RAPs up there, and very shortly we expect to come back to the Commission with some solid recommendations in terms of how we advance that.
- The Board definitely feels that toxic substances are one of our key priorities but not our only priority. We have looked at issues, like **Habitat Loss, Biodiversity, Impact of Exotic Species**, all of these also impact on the Great Lakes ecosystem and we're maintaining a watching brief on that.
- We've had a number of conferences last year in Rochester, a very successful one with the Finger Lakes district, and a report has been published and recently put on the web.
- Two workshops. Again, the information has been summarized and available for public review.

As I mentioned, these are just the highlights. There are two areas that we believe the Commission needs to focus in on, so we've done some indepth work in these area and I'll ask Kelly Burch to talk in the first area, the issue of contaminated sediments. Kelly?

Kelly Burch, member, WQB and Chief, Pennsylvania Department of Environmental Protection

Thank you Vic. It is a pleasure to be here today. Before I start, I would like to tell you about an experience I had over a week ago. I was asked to be a guest speaker at Mercy Hurst College in Erie, to an environmental politics class. I was tracing the historical events leading up to the Water Quality Agreement and the Clean Water Act, and I was talking about the Cuyahoga River catching on fire and Johnny Carson in his monologue, speaking about Lake Erie, where fish go to die. When I looked out, there was almost a look of blank-expression on these students' faces. And I realized that they weren't around then and they had to read about this, and apparently not too many of them had, unlike the group of students from Erie we heard from yesterday. I think *they* would have been questioning me on some of the dates I was throwing out there. It brought to mind how far we've have come in such a recent period of time, and how most of the atrocities we've observed in the '60s and '70s have been cleaned up, but what's left behind is the contaminated sediments that remain buried and continue to be a problem in many harbour and river areas in the basin. That's what I will talk to you about this morning.

The Board's priority in identifying the IJC's value-added role in overcoming obstacles to sediment remediation in the Great Lakes basin. Before I begin there's one other thing I would like you to know, and that is that I stand before you today, not just as a WQB member with a lead on this priority, but as a lifelong resident of Erie, Pennsylvania and the Lake Erie basin. I also have the honour of serving as Presque Isle Public Advisory Committee for the Presque Isle Bay RAP. That's a very unique situation that I find myself in being both a government employee, a PAC chairman, and a RAP coordinator for the the state. It is an honour to do that and one of the things we are wrestling with is the sediment management decision in Presque Isle Bay. It is based on sound science and the social and economic will of the people. While we are asked to serve on the Board in our personal and professional capacity, please bear with me if my personal, and occasionally parochial interest sometimes surfaces.

I recognize that my allowed time this morning is brief, but I would be remiss if I failed to take a moment to convey my gratitude to the Commissioners for their foresight in selecting this as a priority. Their continued support of this Sediment Priority Action Committee [SedPAC] in identifying the value-added role of the Commissioners in overcoming the obstacles, leading to sediment management decisions in the remaining 42 AOCs in the U.S. and Canada. I would also like to thank the CoChairs of the SedPAC, David Cowgill of the U.S. EPA's GLNPO who brought with him not only the knowledge gleaned from the ARCs program but a personal dedication to make a difference and he truly has. On the Canadian side, my good friend, the irrepressible and unflappable, Mr. Griff Sherbin of Environment Canada. He retired midway between the Priorities cycle but continues to guide us in our efforts and provide us with the institutional knowledge and wisdom that one can only obtain after 30 years of service to the people and environment of Canada. And a special thanks to my special friend, John Hartig of the IJC who serves as the Secretary to the WQB and the SedPAC and whom without no task great or small could be accomplished. My point was not only to thank those involved in this priority but to express my gratitude to the federal/state/provincial agencies who support the Commission's priorities by providing the personnel and associated costs to actually participate in these efforts. It is important to continue that.

Contaminated sediment is a major cause of environmental problems and a key factor in many impairments to beneficial uses in the Great Lakes. Based on the application of chemical guidelines, all 42 Great Lakes Areas of Concern have contaminated sediments. This universal obstacle to environmental recovery in the AOCs can potentially pose a challenge to restoring 11 of the 14 beneficial use-impairments identified in Annex 2 of the Agreement. The challenge faced by many of the RAPs has been the inability to move from the assessment stage to a sediment-management option. These options can range from source control and natural recovery, to full-scale remediation depending on the severity of the problem. It is critical that some of these concentrated deposits of contaminated sediments be addressed quickly because, over-time these contaminants may be transported from a river or a harbour to the open waters of the Great Lakes and once dispersed into lakes, cleanup is virtually impossible.

Contaminated sediment is a major problem being addressed in RAPs and LaMPs and is an issue in other areas of the Great Lakes. In recognition of this problem and limited progress in addressing it, IJC identified contaminated sediments as a priority for the '95-'97 cycle and directed the WQB to review the magnitude of the problem and make recommendations to overcome obstacles to sediment remediation. The WQB with representatives from the Science Advisory Board, the Council of Great Lakes Research Managers, federal/state/provincial agencies convened a scoping meeting in March of 1996 and laid the ground work for a sediment white paper. The white paper would summarize the contaminated sediment problems, specify key obstacles and identify options to address them. This paper would also serve as a basis for a workshop. The white paper noted that progress has been made in the remediation of contaminated sediments but sediment problems in AOCs have been brought to closure at only, Collingwood Harbour in Ontario, with a special thanks to Dr. Gail Krantzberg for all her efforts there. She has brought to our group, her intellect, her personality that has been a driving force for us. My thanks to you also, Gail.

In most AOCs, progress has been slowed or completely stopped at one or two stages, decisionmaking or implementation. In the sediment white paper, the SedPAC grouped the major obstacles into six categories:

- limited funding and resources;
- regulatory complexity;
- lack of a decisionmaking framework;
- limited corporate involvement;
- insufficient research and technology development; and
- limited public and local support.

In June of this year, a workshop was held in Collingwood Harbour to identify the value-added role of the IJC in overcoming these obstacles. The workshop included 35 individuals representing the various boards, the SedPAC, and Commissioners Chamberlin and Béland.

In general, the workshop participants concurred with the categories of obstacles to sediment remediation and after paring down the list based on high and low priorities and what was doable outside the regulatory framework, the group recommended two very important value-added contributions the IJC could make to address current obstacles to sediment cleanup:

- the IJC could compile and disseminate information on the economic and environmental benefits of sediment remediation; and
- the Parties could come together under the auspices of the IJC to develop guidance for a decisionmaking framework to assist the AOCs in moving beyond the assessment stage to a sediment-management option and thereby sustaining the RAP process altogether in the areas where it is faltering.

The SedPAC will be working with the Northeast Midwest Institute and their economists as part of the Great Lakes Economic Valuation Guidebook currently being developed. The economic benefits of a dredging program are relatively simple to quantify, such as Waukegan Harbor on Lake Michigan, the harbor was last dredged in 1972 and has now silted into almost 18 ft., thereby restricting the draft of commercial vessels calling at the port, with ships only operating at 40 to 50% of capacity. The economic consequences for our community are great.

We will now have the opportunity to go beyond pure economics and begin to quantify the environmental environmental benefits of the cleanup as well. We recognize the fact that a binational framework is probably not within the realm of possibility due to the Superfund cleanup laws in the two countries which are part of the regulatory scheme. We do believe however, that a flexible, risk-based framework can be developed with some common ground that will be of tremendous benefit to more than half of the Areas of Concern which are characterized by wide-spread low levels of contaminants which do not lend themselves to full-scale remediation options. What is required, however, is the means to direct them to a decision whether it is natural attenuation, attenuation in dredging, or somewhere in between that either solves or dissolves the contaminated sediment problem.

This incremental measure of success will not only serve to sustain the RAP process but it will allow these RAPs to focus their efforts in areas such as fishery and wildlife habitat restoration where they can truly make a difference. Thank you.

Tracy Mehan III, member, WQB and Director, Office of the Great Lakes, Michigan Dept. of Environmental Quality

Good morning, My name is Tracy Mehan with the Michigan Office of the Great Lakes. Pleasure to be here to talk about the beyond compliance portion of the cooperative effort between the WQB and the IAQAB which to my mind, at least, and I think most of the members of the WQB, does represent a real breakthrough in a cross-media cooperative effort which given the nature of the challenges, especially in the area of persistent bioaccumulative toxics is really the way we have to go. At least on the U.S. side, we are well below detection level on many parameter. We are hitting the wall in terms of the cost-benefit issues, in terms of end-of-the-pipe control, and we have to look at everything from nonpoint source to sediments to the long-range air deposition, and to the basic use of certain materials or chemicals in industrial processes, generally. So I think this effort is consistent with that realization where we have to go in terms of our policy work and analysis. We hope to continue this cooperative effort -- this ongoing dialogue -- between the two boards, using as the basis for this discussion, the recent Great Waters II report, released by EPA under Section 112 of the Clean Air Act amendments of 1990. We think that will allow us to follow through on these discussions. You will hear more about the air/water linkage in the IAQAB's report.

I would like to comment, listening to Kelly's experience, staring at blank faces of younger kids talking about things, it reminds me of an incident recently where I had inlaws over for Thanksgiving and went to put on some music and my brother-in-law and saw me turning on the system and yelled "Hey kids, have you ever seen a turntable before?" But that was two years ago, I've since, dragged kicking and screaming into the 1990s. Here was a great Girard turntable.

Again, in May of '97 in Romulus, we put on a well-attended workshop with the Air Board. A lot of technical information which you'll hear about from the Air folks and as part of that, there was a beyond compliance section which I'll be talking about. The workshop addressed needs and priorities relative to problem assessment, that is research assessment, monitoring and mass balance modelling, as well as problem response. In other words, the policy and management actions. The WQB, as part of this effort and in preparation for the workshop, commissioned a study by SAIC. a consulting firm out of northern Virginia, who produced a beyond compliance report, authored by Mr. Bob Linett. Complete copies of this report are available and its on the web. I recommend it to you highly. It's titled "Report on Applicability of Voluntary, Beyond Compliance Programs to the Virtual Elimination Strategy." Cooperating with SAIC was Helle Tosine, Gary Gulezian, Peter Wise, of course John Hartig and myself. What you will get is an overview of Ontario, Illinois and Michigan programs that fit this beyond compliance, pollution prevention, innovative incentive-based approaches to toxic reduction, as well as some very provocative, or at least interesting policy recommendation that were discussed at the workshop. Some of which were adopted and I'll discuss today.

Basically some of the areas that we discussed in beyond compliance was obviously pollution prevention as source reduction, or "virtual elimination" in the IJC terminology. ISO 14000 but beyond ISO 14000 to environmental management systems generally, that are being adapted throughout industry. ISO 14000 is a prominent one but not the only one. For instance, there is the total quality environmental management program promoted by the Council of Great Lakes Industries. And of course, effluent trading, and let me say here before -- I know 'trading' is one of those words that sets off very interesting reactions in different people. We are using it here in its broad, generic sense to encompass not just classic trades, like you have under the SO_2 provisions of the Clean Air Act but really least-cost options for say, a point source that may be hitting the wall in terms of that cost-benefit study, in terms of end-of-the-pipe treatment, looking at other alternatives that they can pursue that still achieve the goal, reach the strong standards, or even the goal of virtual elimination. We'll be talking about that a bit more.

One thing I forgot to mention, when I mentioned the SAIC report which I highly recommend, I suggest that if you are interested in this topic, read it in conjunction with the WQB's recommendations in the 1993-95 Priorities Report to the IJC which keyed on a March 1995 workshop that the WQB put on, on Pollution Prevention which emphasized things like materials accounting, and technology development and things that are more internal to industry, like P2 source reduction, industrial ecology, sustainability. These two documents together will give you a wonderful introduction to this whole interesting area that goes under many names, virtual elimination, source reduction, P2, sustainable development.

Looking to the specific recommendations from our workshop in May in the beyond compliance area, the IJC and Parties need to develop an inventory of uses of persistent contaminants of concern and to the extent possible, estimated release rates associated with users, or at a minimum user communities to assess what types of incentives may be appropriate to spur action on the part of user communities. The IJC and Parties should identify which of these contaminants are candidates for reduction through one or more incentive-based programs.

Again, this difficult problem of mercury minimization, first of all we are talking small quantities, instead of tons. You're talking about pounds, you are talking about something that is naturally occurring, not used in many processes per se, or at least as a byproduct of various combustion activities. Minnesota is doing some very interesting work at least trying to look at what the options are, in terms of incentive-based approaches. Even something in terms of cross-media trading if POTWs, finding it impossible, the costs are so prohibitive in terms of end-of-the-pipe -- what can they do moving upstream to minimize mercury or maybe control a combustion source.

I've seen interesting stuff out of the City of Duluth and Detroit, alternative compliance programs that lend themselves in this area. The idea of quantifying the use of some materials, an example of what was mentioned yesterday in Michigan, when we asked the auto industry to look at mercury uses in their processes, their initial reaction was that this was a problem for the power companies, what are you bothering us for? We said "humour us, take a look at it" and they went and did it and found out that they were using 9.8 metric tons of mercury per year just in convenience light switches in hoods and trunks. We would like to pursue the discussion with the auto companies further to do materials accounting for mercury in all aspects of those 25,000 parts that go into an automobile and see what we might get. If you quantify it, you can manage it. So I think there is something to be said, realizing that they are sensitive issues in terms of international competition, proprietary issues, but if we can get at least some targeted and specific focus discussions relating to PBTs, we think it's worthwhile.

We recommend that the IJC and Parties should plan a workshop in which government and industry jointly develop and evaluate contaminant-use trees for particular parameters to identify where reductions are possible and evaluate incentives that the Parties/jurisdiction might provide industry in exchange for further reductions.

The IJC should challenge Parties/jurisdictions to lead by example, by reducing the generation of Level 1 and Level 2 substances (that's from the VE strategy) as a result of their activities, products and services. Again, let's get specific, let's look at the use, you've seen these use-trees before in the VE report and mercury reports, chlorine reports. Let's look for the opportunities. Let's not start out with an abstract request but let's get specific and look for the low-hanging fruit, move to the use-tree and move the concept of source reduction along in what hopefully would be a cost-effective manner. Once you get peoples' attention on it, some things jump out in a self-evident way. Other things may be more difficult, more problematic but again, as in the case of autos and switches, once they take a look at it and try to put some quantitative numbers behind that. Governments should lead by example. For instance, energy conservation. We're looking at the energy bank possibility similar to Iowa's. You know, are municipal and school and state facilities and federal facilities operating efficiently in a way that would reduce a number of contaminants coming out of the stack of power plants.

Getting here into the environmental management system area, the IJC and their Parties should provide leadership in helping to ensure that all organizations in the Great Lakes basin seek to achieve ISO 14000 certification. All those seeking that certification, identify persistent bioaccumulative toxic contaminants as "significant environmental aspects" of their activities, products and services. We are not necessarily trying to exclusively focus on ISO 14000; some companies are thrilled with this, but again whether it's TQEM or some EMS system or 14000, the IJC should encourage the incorporation of persistent bioaccumulative toxic (PBTs) concerns into these systems. The fact is, using ISO 14000 as an example, it is a way to optimize your way of operation. It is essentially agnostic as to ends, but it is a good means. The IJC and the Parties would do well to inject into these discussions/processes a greater concern or focus, or sharper focus on PBTs, whether it is ISO 14000, or EMS or TQEM or any of those kinds of things.

The next recommendation, that the Parties and jurisdictions should be encouraged to ensure that sectors using Level 1 and 2 contaminants, processes, activities of concern, are fully evaluated as part of technical assistance programs. Organizations reducing contaminants of concern should be eligible to receive some form of a credit or incentive or whatever, it could be regulatory flexibility. I think again, the auto projects something that we are very involved with in Michigan, its initial focus was on 65 Great Lakes persistent toxics. Now they brought in a lot of different things, everything from recycling, to energy conservation, energy efficiency but again, we need to encourage the federal and state agencies to put this as a priority, give it a focus. There are so many things that industry has to deal with and we can provide some guidance, some leadership, some focus by bringing these existing programs, many of which are outlined in the SAIC report, injecting them with a priority concern with these persistent toxics.

The Parties and the IJC should explore the market-based incentive programs to encourage -- this is a mis-statement -- encourage remediation of contaminated sediments is a big example of where we think we could look at these opportunities but it's not the only one. I mentioned mercury as another one. So contaminated sediments here are a for instance, not the sum total of the recommendation. But exploring use of these incentive-based programs to encourage remediation, for example, and this is in the SAIC report, an industry could adopt an orphan site for remediation in exchange for longer permit terms, extended compliance schedules, or other form of regulatory flexibility. Again, at least under the U.S. system of liability, nobody is going to touch that site in the absence of some incentive or public works project and the last time I looked, I'm not seeing any big public works project on the horizon. One could argue about that opinion. But nonetheless, we think these are worth exploring. Again, the least-cost option to of achieving equivalent reductions to different approaches.

Also, the Parties and jurisdictions should explore providing regulatory flexibility in exchange for an organizational commitment to conduct research and development to reduce the generation of Level 1 and 2 contaminants that are incidental byproducts, such as PAHs, of production and waste-management processes.

[Beginning of next tape -- some dialogue lost?]

David Ullrich, U.S. CoChair, Water Quality Board

Even though I'm the rookie, Vic was nice enough to let me back cleanup today and I guess that's an appropriate theme for a lot of things we are doing. I *think* that I successfully passed my initiation rights that Griff arranged up in Thunder Bay with an October snow storm. I hope you will have patience in terms of my getting up to speed. I don't know how many of you have had to follow a presidential candidate in your job, but it's not an easy act to follow but nevertheless, here we go.

I think that the Water Quality Board is working on the right issues and doing the right issues with them. We feel that we have been responsive to both the Commission and to the broader public concerns. It appears that report cards are popular these days, and although we don't have the grades here, maybe this is a pass/fail system, I think we have done a lot of good things in addressing these issues.

First of all, this critical issue of sediments as Kelly presented, a lot of good work on that, that will provide a foundation for future activities.

Dealing with the PTSs and the loading sources and pathways. Some excellent work on that. Providing advice on the future of RAPs and how better to manage or monitor progress under those.

The public outreach meetings, both in Rochester, and I was personally at Thunder Bay and was very impressed with the involvement there.

Continuing to deal with the federal sale of mercury and that still is not sold, so that's the most important thing.

Then, dealing with the tough issue of uniform and fully-protective fish consumption advisories, a continuing issue but some good progress on that as well.

The importance of habitat, biodiversity and exotic species. Very important to be looking at this. We do not have the luxury of only looking and focusing on one issue, there are too many priority issues and this is one of them. And, the methods of rehabilitating and conserving habitat.

I think we had a very productive time period and I am looking forward to working with this outstanding group of people on these tough issues and making progress in the future.

Thanks very much, Vic.

Vic Shantora (as above)

I think we still have some time for questions and answers. Please identify yourself into the microphone, please.

Q: My name is ***Ian Brindle***. My question is concerning the future of potential contaminants, and I'm surprised that nobody has mentioned Clinton's Green Chemistry Challenge which seeks to replace persistent toxins with more benign products. I wonder if we could hear some comments about that.

R: ***(Shantora)*** Is there anyone in our Water Quality Group that could address that? I don't see anyone volunteering right now. I think that green chemistry is just one of the many strategies that we have undertaken in order to try to deal with the whole issues of persistent toxics and with the time period we had this morning, there was not a whole lot of opportunity to get into all of the individual parts of the strategies, but it's a very clear part of the strategy on the U.S. side to deal with that persistent toxic issue and to find reasonable substitutes in advance of them getting out loose into commerce and ultimately the environment. So it is a key part of our strategy, but it's not something that we are in a position to report on specifically today.

Q: ***Edith Chase***, Ohio. I just had a suggestion. In your spare time, could you begin to explore the relations between water quality and water quantity, that is the use -- another option in addressing some of these issues is water conservation and efficient use.

R: ***(Shantora)*** We don't have a whole lot of spare time, but in the little bit we do, I think that's a good suggestion. We will add that to our list of things.

Q: My name is ***Emily Green*** with the ***Sierra Club***. I want to ask about your contaminated sediments discussion. One of the major barriers in dealing with contaminated sediments, obviously it is almost more a lack of funding, than information, and I want to know if IJC addressed that at all in the workshop and if there's any recommendations you had in terms of pursuing funding in different countries for the RAPs?

R: ***(Shantora)*** I'll ask Kelly to start on that.

R: ***(Kelly Burch)*** At first we thought that funding was going to be the major obstacle and then as we began to look down through the 42 Areas of Concern, we found that there were very few that are ready to undertake a full-scale remediation project at this time. The reason was not due to lack of funding, it certainly was in a few cases, don't get me wrong, but it's that transition from moving from the assessment stage to making that sediment management option, whether they are opting for natural recovery or the end result will be a full scale dredging project. We found very few that they were just waiting for millions of dollars to come their way. This is not viewed as a panacea for all the AOCs, don't get me wrong, but we think we could make a big difference in maybe half of the AOCs out there and if we can move them over this hurdle, I think we can go a long ways in sustaining the RAP process altogether.

R: ***(Ullrich)*** I didn't participate in the workshops myself, but this has been a major issue -- the Ashtabula partnership situation is one where they have formed a foundation to try to be able to attract tax deductible contributions to the cleanup. I'm working on the Fox River. Early estimates are in the $500-

million to $1-billion cleanup level, and we're trying to look at combined federal/state/local/corporate -- a joint enterprise effort. The Grand Calumet River/Indiana Harbour Ship Canal has used a unique combination of enforcement authorities and supplemental environmental projects as a result of enforcement actions, plus corporate funds. Again, this is characteristic that we are going to have to look at the unique circumstances in the individual Areas of Concern and try to come up with creative funding mechanisms. It is clearly a major, major problem, particularly with the bigger cleanups.

Q: ***(Green)*** I hope that you all can take that into consideration. Thanks.

Q: My name is ***Robin McClellan***. I serve on the ***Massena Remedial Advisory Committee*** at Massena/Cornwall/Akwesasne AOC and I notice that your summary of accomplishments were primarily papers, meetings ... and I'm thinking of the basin in general. What did you accomplish in the water, not on paper?

R: ***(Ullrich)*** If you are speaking in the basin in general, I'm not familiar with the specifics about the Area of Concern that you have mentioned. I think Waukegan Harbour is one of the best examples, where over a million pounds of PCBs were removed from the sediments and within three to four years we were able to lift the particularly tight fish advisory in Waukegan Harbor resulting in a cut-back in the amount of PCBs going out into the open lake. That's hard to measure over the short term. Manistique Harbor, roughly 60,000 cubic yards removed from there as well. Again, it takes some time in terms of when that shows up in fish and in the ambient water quality levels, but clearly there is some progress being made, although there's a full recognition that this process is long and difficult because of the complexity of the problems, the amount of money to solve the problems, the number of people we have involved, but clearly progress is being made. We would all like it to be faster.

Q: ***(McClellan)*** I just would encourage you to look at your accomplishments in terms of what happens in the water and not what happens on paper. It seems like so much of the work that I do in working with the Remedial Action Committee revolves around paper and the remediation happens independently of that. If you are going to be truly effective, the accomplishment isn't on paper, it's in the water.

R: ***(Ullrich)*** I think that is a very valid and important point and in fact, I think we are trying to do a much better job in terms of those real bottom-line indicators of getting to where we need to be. Thank you, good point.

Q: (--) I wanted to address my remarks to the gentleman talking about sediment remediation. I heard you both in your original presentation just a moment ago refer to natural regeneration. I wonder whether you could enlarge on that for a moment in terms of what you mean by that and how you feel that might play a role in sediment remediation.

R: ***(Kelly Burch)*** Any time I speak about natural recovery, it's always going to be in combination with source controls, to prevent future pollutants from entering the system and it's also got to be attached to a long-term monitoring program to make sure that you are reaching to goals you have set forth. My vision of natural recovery of a system may be completely different from someone elses, because I look at Presque Isle Bay and tend to focus on that system. If I believe that conditions can return to normal levels or somewhat near normal levels within 10 to 15 years or 20 tops, I think that's something we can live with. We are looking at a 3,200 acre bay. This is not something we are going to go in and dredge or cap; it's all widespread, low-levels of contamination and I think in an area such as Presque Isle Bay, it's the appropriate measure to take and we have been wrestling with this problem for years. We have spent hundred of thousands of dollars on it to study it, to analyze it, and we are no further along in reaching a decision that we were two years ago. I hope by next year we can reach a decision that we can all live with and it's going to be the best for Presque Isle. In other systems, it may take much longer -- 50 to 100 years perhaps -- for natural attenuation to occur but when you look at the time it took for these systems to become degraded, 100 to 200 years, you can't expect any type of improvement immediately. I think that's what people fail to recognize in the RAP process. For most, these were named Areas of Concern in the late '80s, Presque Isle in '91; people are asking why haven't you done anything yet? Why haven't the problems been fixed? That six to 10 years to cure 50 to a hundred years of problems. I think we need more realistic goals and I think this is one way to move us forward and keep the RAP process going.

R ***(Ullrich)*** In the interest of time and fairness to the other groups, we are going to have limit the questions to just those standing.

Q: (--) Just a comment on the last response, we all know that Pennsylvania worked very strong and assiduously to keep Presque Bay out of designation as a Remedial Action Area of Concern, for decades very successfully. The 1991 date is not a very relevant date, but I want to complement you. I am not here to throw rocks. How are you relating to the First Nations as a tribe? I know that Val Adamkus was strongly involved with the tribes on the U.S. side. Is there any prospect that there will be tribal representation on your Board?

R: ***(Ullrich)*** On the Board itself, I can't speak to that issue, but Val Adamkus was very committed as was our whole region to working with tribes and I have spent a good portion of the first four months of being on the job, working with the tribes across the board on all environmental matters. I think Patty O'Donnell is here from the group in Michigan and I met with all of the environmental leaders from the tribes in Michigan. I've met with two of her regional tribal operations committees, so there is a full commitment in our region to continue to work with the 34 tribal nations in the Region 5 area.

Q: (--) What about formal representation on the Board? Is that a prospect?

R: ***(Ullrich)*** I am not in a position to speak to that issue, Thank you.

Q: Good afternoon gentlemen. My name is ***Sally Billups***. I am with the ***Michigan Environmental Council***. A number of my colleagues are exploring the potential to have a mercury cap and trade program, particularly in Wisconsin and Minnesota. We are also looking at that in Michigan as a potential opportunity to have an economic and regulatory regime that works towards virtual elimination of the tier 1 pollutants. Given the regional and even international nature of the air transport of mercury, is this something that the Water Quality Board is exploring? It's really helpful to get candid advice because we are trying to strategically guide our own research and advocacy efforts.

R: ***(Ullrich)*** I believe the Air Board is going to address that issue so ...

Q: ***(Billups)*** Okay, I guess I see Mr. Mehan mentioned how there is coordination between the air and water programs and this is one area that obviously, the mercury is coming out of the air and landing in the water, polluting. All of Michigan's inland lakes are under advisory from mercury, so it's a water problem.

R: ***(Ullrich)*** There is no question, I think it is a very high priority for us to deal with, and I think we are going ...

R: ***(Tracy Mehan)*** We are very much involved in following the Minnesota effort and we supported them when they went to GLNPO for a grant and GLNPO is to be congratulated for giving them a quarter-million dollars. I think everybody is looking at this. Again, trading in its generic form. I don't want to get locked into any particular style, and Minnesota is to be congratulated looking at a variety of innovative non-traditional approaches and I think that the recommendations and beyond-compliance portion of the WQB submission to the Commission is something the Commission ought to take a look at and play in that game.

Q: ***(Billups)*** So, to put it to a closure, is this something that as an environmental organization, the Michigan Environmental Council, it should be pursuing in Michigan?

R: ***(Mehan)*** You mean MEC in particular? Yes and we're following it, and Minnesota is the lead and we are very interested in it, so I think engaging in that dialogue is well worth the time and effort.

Q: ***(Billups)*** Thank you very much.

R: ***(Ullrich)*** I think we are going to have to discontinue the questions at this point. We would be very happy to get with you individually in back of the room but in fairness to the other Boards, we need to move on to them. We'll make ourselves available in the back.

L.H. Legault, Chairman, Canadian Section, IJC

Thank you very much. We really do owe a debt of gratitude to the Water Quality Board, not just for its presentation this morning, but for its very effective work during the past year.

I am reminded by the way that the Declaration of Independence was an accomplishment on paper, but led to a number of other accomplishments. We are now going to hear from the Council of Great Lakes Research Managers, Jeffrey Reutter and Harvey Shear, if they will come to the podium.

INTERNATIONAL JOINT COMMISSION
GREAT LAKES WATER QUALITY AGREEMENT
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COUNCIL OF GREAT LAKES RESEARCH MANAGERS

Harvey Shear, Canadian CoChair, CGLRM

Good morning Commissioners, ladies and gentlemen. I am Harvey Shear with Environment Canada and it is my pleasure to begin the presentation of the Council's '95-'97 report. My U.S. CoChair, Jeffrey Reutter will complete the presentation.

This is my first meeting as Canadian CoChair of the Council. Before I start I would like to ask any Council members who are present if they would just stand and wave their arms about. Well, I guess there aren't any. Okay.

As an introduction, I would like give you a sense of what research has contributed to the Great Lakes. Many of these things you have heard before:

- The recovery of Lake Erie depended very much on a focused binational research effort which led to very dramatic improvements in the lake, and generated an interest in nutrient management worldwide as a result of our effort sin Lake Erie.
- Our research and support of RAPs, for example, Hamilton Harbour, Green Bay, Fox River, Nipigon Bay, Bay of Quinte; those RAPs could not have done the work that they have done without very strong research support.
- The identification of toxic substances as an issue in the Great Lakes depended very much on a strong research program at a variety of agencies, universities, etc.
- Our work in identification of human health effects of contaminants has, of course, depended very strongly on very strong research efforts on both sides of the basin.

I would like to quickly review our '95-'97 activities. The Commission in 1995, essentially gave us one priority. We had a listing of several as I recall and basically the Commission told us that we had one priority, to look at how to improve the effectiveness of Great Lakes research in the face of major budgetary restrictions. I would like to take this opportunity to thank John Cooley from Department of Fisheries and Oceans who was the Canadian CoChair of the Council, and Nelson Thomas, now retired from U.S. EPA for their leadership in this effort.

This particular priority derived from a number of specific activities over the last two years. We built on the Public Forum that was held in Duluth in 1995. We developed a strategy to involve research managers in looking at how to improve research. We consulted the research community and we developed a report and recommendations on various mechanisms to improve research. Specific activities involved a survey of the research community, looking at the extent of budget reductions and that is in the 1995-97 report. We produced a white paper which explained the Council's objectives and gave examples of successful research areas in the Great Lakes. That white paper was used for discussion purposes at a number of meetings; one public meeting in association with the Council's November 1996 regular business meeting where local researchers and interested public were involved. There was also a roundtable at SOLEC '96 in Windsor which generated considerable discussion and ideas. Following that was a panel discussion at the 40th Conference on Great Lakes Research in Buffalo this June.

The result of all of these activities led to a number of recommendations and I am going to go through the ideas that emerged. I won't read the recommendations out. As I said they are in the Priorities Report. You'll be able to read the slide as well as I can talk to it.

- The first area we heard about was **Partnerships** and the need for research partnerships. They currently exist at a variety of levels and we need to look at some innovative approaches to continue them, to make the maximum use of the funding that we have -- federal/provincial, federal/state, state/provincial, international partnerships -- there should really be no barriers to research, because science is international. We should be able to have access to equipment, to data, and perhaps even cross-border funding (Dare, I say it!). This led to the recommendation on partnership mechanisms which you see up on the slide now.
- In a related area of **Collaborative Efforts**, we currently have a number of collaborative efforts in place -- university, government cooperation -- but I think we can improve on those, particularly government/university where we might make better use of graduate students, post-doctoral fellows, which tend to be very efficient and fairly low cost ways of getting research done. We also need to look at research that's more targeted, mission-oriented, to use the buzz word of a couple of years ago. And to give some credit for synthesis work, because it's very often the case that we collect information, publish it in a journal, but in terms of the kind of work that we need to do in the Great Lakes, there may not be the kind of integration and synthesis that's required. There aren't very many universities that would give academic credit for a synthesis type of project as opposed to a new and innovative research which leads to either a Masters or Ph.D. There are some universities that do but we need to look at ways of getting more of the work that is being done synthesized and reported out. That led to the recommendation you see on the slide now.
- Research has played an important role in **RAPs and LaMPs**. Good science has led to a number of sound decisions in the RAPs and will in LaMPs, as LaMPs develop. We need to overcome some barriers that currently exist. In many cases, researchers don't get any credit for the work they do on RAPs and LaMPs and this sort of thing needs to be fixed. They may get a pat on the back or a thank you from the RAP team but in terms of their regular work, if it doesn't lead to a primary publication, they may not necessarily get credit for it.

I would point in this regard, to the role of research in RAPs and LaMPs to a recent editorial by Gail Krantzberg in the *Journal of Great Lakes Research* which sets the issue out in very clear terms, and the role of science in RAPs.

- Clear identification of research needs and implementation of research results by RAP teams and ultimately by LaMP teams is going to be particularly important. This led to the recommendation that you see here now. We want researchers to be actively involved in RAPs and LaMPs and to get credit for being active.
- A recurring theme is **Communication of Research Results** -- Marketing is as good a word as any -- the benefits of Great Lakes research. When research budgets were being threatened and in some cases, cut, many researchers said why are they cutting my budget? You asked, does anybody know what you're doing, and very often, nobody does know. At least the powers that control the purse strings may not necessarily have known what they were doing.

It may sound a little crass to say that we need to market research, but on the other hand, it is a way of getting the information out there, and making the public aware of what's being done and the value of it to the Great Lakes in this case. So we are looking at how we can market our research, how we can communicate, not only the results, but the value of the research that's being done. You know there are a number of possibilities, looking at, i.e. we just heard the talk on sediments, treatment technologies, optimization of control for combined sewer overflows, drinking water protection, habitat rehabilitation.

There are a number of areas where research is cutting edge, and should be marketed.

One problem, of course, most of us are trained as biologists or chemists or physicists or whatever and not as marketing experts, so we probably need a bit of training in that regard. This led to the recommendation you see now.

- **Coordination of the Use of Research Vessels**. In carrying out research on the Great Lakes, we use a variety of research vessels and we held an initial vessel coordination workshop back in March. We need to look at ways of improving our coordination in the use of equipment. I touched on that earlier. Improving, which will lead to more effective research. This led to the recommendation that you see now.
- Another thing we heard in our public discussion on priorities, Is **How Do We Set Research Needs and Priorities?** Very often research planning may be as low as 10% of the overall project life. I think that research planning in the context of management needs is much more essential. Research priorities (the word sometimes should be in there, it was inadvertently left off) are *sometimes* established in a vacuum and that needs to be fixed. We need to have clear management goals for which the research will be done. Of course, planning is more important than ever. There's an interesting table in our chapter of the Priorities Report which looks at the shift -- the old paradigm/new paradigm -- and the way that the Department of Fisheries and Oceans, for example, carries out its research. I would draw your attention to that chapter; it's very enlightening. That led to the recommendation you see now.
- **Why and How Do We Carry Out Comprehensive Studies?** Finally, given the size and complexity of the Great Lakes system, we often need to carry out very comprehensive studies. We've done that in the past. Those of you with long memories will remember the International Field Year of the Great Lakes, IFYGL. There's work... the Green Bay Mass Balance Study, Lake Michigan Mass Balance Study, we've got the air deposition network which is binational, we've got Lakewide Management Plans being developed which may require lakewide research. We've got a very complex, very large system and we need to be able to lever resources, combine funds, do collaborative studies. This kind of rolls in everything I said in previous slides, so that we can continue to carry out the large-scale complex studies that may be necessary to continue, understanding the system, particularly those lakes that are under severe stress and are changing from an ecosystem that we "sort of' thought we understood" to one that perhaps we don't really understand at all. That led to this recommendation regarding the large-scale binational studies.

I would now like to turn the rest of the presentation over to Jeff Reutter, my U.S. CoChair.

Jeffrey Reutter, U.S. CoChair, CGLRM

Thank you Harvey. I am the U.S. CoChair. I am the Director of four programs in Ohio and Ohio State University: the Ohio Sea Grant Program; Stone Laboratory, our biological field station and Lake Erie laboratory on Gibraltar Island on Put-in-Bay; the Center for Lake Erie Area Research; and the Great Lakes Aquatic Ecosystem Research Consortium, it is a consortium of 12 colleges and universities in Ohio.

I would also like to welcome Kelly Burch and Pennsylvania as the seventh Sea Grant Program in the Great Lakes completing the Sea Grant network. We are very pleased that they are coming in.

Dr. Shear has summarized the input that we received at SOLEC and IAGLR on improving the effectiveness of Great Lakes research. He's also listed our broad range of recommendations to address the issues that were identified and it is our intention to systematically address each of those recommendation during the next year. However, our specific priorities for the next biennium which are called for in our Terms of Reference from the Commission, include efforts to address the following:

- Communication of Research Results
- The need for and the establishment of a Great Lakes Modelling Summit. You'll find in the Priorities Report for '95-'97 in the completion report from the Lake Erie Task Force that that was the final recommendation of the task force.
- We are continuing to look at the Significance of Program Losses and Effects on the GLWQA
- We are looking at the issue of biodiversity and the Loss of Biodiversity within the Great Lakes region, and
- Continuing to work on the Research Inventory. With regard to the inventory first, I am really pleased with some of the improvements that have taken place. It's now a cooperative effort between the Great Lakes Commission and IJC, and working through GLIN, you can see the web sites to identify and find all of the 1996, 1997 data on research projects. Also within the past year, we've established a new search engine so it is now possible to do multiple searches of the data and it is much easier to search the database.

We've also made it easier for investigators to input their research data and information on their research project. They can now do that using an electronic form, essentially live, while they are on the net. If we look at a summary of 1996 and compare it to 1997, you can see that in 1996, we have 408 projects reported, $71-million in U.S. dollars within the region. So far in 1997, we have 277 projects reported and a total of $39-million. I think it's important at this point not to place too much significance on that reduction, clearly I am convinced it's going to ultimately be a very significant reduction, but it's not complete and we are still adding additional data.

We are also, unfortunately, seeing that one of the results of the budget-cutting process is that everyone within the region is severely overworked and simply taking the time to input the data is becoming more and more difficult.

If we look at the other priorities that we are establishing for the next biennium, one of the most important, I think, is the communication of research results. As Dr. Shear alluded to in the beginning, we we have a couple of points that we want definitely accomplished in this biennium. We want to make better use of *Focus*, the IJC's newsletter. It's now on the website and we want to make better use of that website. When we met in March, we had a number of recommendations to improve the website and we're very pleased with what has been done. The Windsor Office and IJC has done a very good job in improving that website. It is now much more usable and much easier to find and there are many organizations within the region that are now linking to it.

We're also looking at promoting media participation at research conferences. There are a number of ways that we can do this. Essentially, we need to create opportunities for reporters to interact one-on-one with scientists. We found that we can stand up and make presentations, and it's difficult for reporters to do a quality report or article on that presentation, but if we can provide an opportunity for them to interact with the reporters for a half-hour afterwards, we can get a much better article and actually make it more beneficial for the science writer or outdoor writer or the environmental writer.

We've also recommended that we form a research communications task force. We are looking at Jennifer Day at IJC's Regional Office in Windsor as coordinating that. We identified each of the research communicators within the various agencies and offices within the region to participate on that. It is also interesting to note that we want to make better use of technology, but this decision was made at 4:45 pm, Thursday afternoon. The Council arrived here on Wednesday and that's one of the reasons not too many of our members are still here is that we have been meeting since Wednesday. At 4:45 pm Thursday, we made the decision to work and form this task force. Nothing more has been said about it, but I've already been contacted by a number of sportsmans' groups and environmental organizations that want to participate in some fashion, so maybe the best technique for communication is to whisper behind closed doors and it will sneak out.

With regard to our Great Lakes Modelling Seminar. Again, a recommendation from the Lake Erie Task Force. We are looking at two suggested venues. The recommendation is that this take place once a year and that we bring together the modellers, research scientists and the managers. Clearly the models cannot be developed in a vacuum. The best models are those that are developed to respond to specific management questions. Two of the venues that have been suggested and that we are looking at is in some way operating with SOLEC in Buffalo in October 1998, and at IAGLR in Cleveland in May/June range of 1999.

With regard to the impact of program cuts, we have created a series of subcommittees. Each one of those subcommittees has taken on a specific IJC priority and they are endeavouring to look at the inventory and also the research that is going on within the region to assess the current state of science and research. We want to identify the needs and the gaps in that science and research and then we can work internally within the Council to modify the research programs and try to address those needs and close those gaps and we also can thereby identify where program cuts have created the most damage.

With regard to biodiversity, we are again looking at assessing the science and trying to get a better feel for the research background, current research, what is currently happening within the region on that issue and then get back to make recommendations to the Commissioners regarding IJC's role in that area.

All of these policy and planning discussions are very important. But it might be appropriate to conclude our remarks with a very brief discussion of some current research efforts, current research results that we thought might be of interest to this particular audience. These efforts are both environmental and economic addressing fisheries, water quality, sediments, and a variety of issues. This is, again, a very, very small summary of some of the work that is going on, but we've also tried to document the impact in some areas:

- In the area of fish-hatchery production, we have had research that has increased hatchery production, six to ten fold, with no additional cost. Simply improving the management.
- In zebra mussel control, many of you saw the initial projections of 1989, estimating that between five and ten-billion dollars would be spent to control zebra mussels within the region. A very significant amount is still being spent. The average power plant in the region is now spending $350,000 per year to clean zebra mussels, but that's much, much lower than originally projected. We have been able to show them when to chlorinate, when to use the molluscicide. We have also been very successful in reducing the impacts of the controls by reducing the frequency and the duration of any chemical use.

A number of new projects underway:

- Looking at photodegradation of agricultural chemicals within wetlands. I think it's a very important area and very promising area.
- Many in the biotechnology area were using biotechnology in single-celled algae to remove heavy metals from waste streams and potentially from sediments and what's equally exciting there, is that there's always a concern over the release of a bio-engineered organism. This particular work right now has been just as effective after they make the engineering modification to the single-celled algae, they can freeze-dry the algae and only use the cell walls and still receive a great deal of success.
- Within the area of wetlands, we are trying to be more creative with our development and management strategies for the wetlands. There are projects underway now, looking at wetlands that have been overtaken by Phragmites, and literally going in and bull-dozing, taking a swaft off the top of the wetland, knocking out the Phragmites. It appears that many of the endangered that we have felt were lost, the seeds are still viable within this seed bank and when you knock off the

Phragmites, the endangered species come back and increase biodiversity.

- Looking at contaminant transfer from zebra mussels up through the system and now we are seeing that a number of the other aquatic nuisance species are participating, in that the round goby is eating zebra mussels, and then being eaten by small mouth bass.
- Looking at creative habitat and economic enhancements. Artificial reef development in Lake Erie and currently underway, taking old Cleveland Stadium and using it to create artificial reefs in the Cleveland area. We have been able to demonstrate that these artificial reefs attract 20 to 60 times as many fish as the surrounding area. And economically, they pay for themselves 2.75 times per year.
- We are also looking at options to, not solve the contaminant problem, but are there things that we can do in the short term to seal contaminants in, and thereby reduce the transfer of contaminants into the open lake, while we are still dealing with more permanent solutions to the problem?

Before I conclude, I would like to recognize all of the Boards and Council are made up of volunteers. We all have other jobs that we do and one of the things that allows us to be effective is the great support that we get from the staff at the IJC offices. In this past year, we were struggling for awhile because our lead in the IJC office, Dave Dolan, was recovering from a serious illness. Dave, it's great to have you back and I certainly do want to recognize all of the support we get from the IJC staff. It really helps us. With that, I will conclude and I appreciate the opportunity to present these results.

Questions and Responses:

Q: ***Elaine Kennedy***: I would like to make two points: one is I commend you on one of your bullets about government agencies collaborating with universities on focused, client-driven research projects. One of the things that came to my attention a couple of years ago was when a local committee on air quality tried to get information about the relationship between the quality of air in Cornwall, Ontario and lung diseases of various types in the area, they found that a doctor at McMaster had tried to do a study from Windsor right through to Quebec and found that the documentation from hospitals and doctors were so inconsistent and at that time, I thought why on earth can't somebody come up with the project for a university student to create an efficient questionnaire that could be used and would not add time to doctors and nurses' workload but could help answer these questions. I'm hopeful that something will come out what you have there. The question I would like to ask is, in looking at your research planning, one of the things I noticed in the creation of our Stage 2, we sort of can't send off our Stage 2 document to the IJC until it has gone through all its formal ratifications through the COA RAP steering committee and the PAC, etc. etc. Is there any way, early on, the research programs that the RAPs are looking at in the various AOC couldn't be sent to you so that you could see where, perhaps in Cornwall where one of our research programs is 'x', and you find the same thing is being looked at the Stage 2 in some other area -- Is there any way that you people can help coordinate those kinds of things so that the research can be done more efficiently?

R: ***(Jeff Reutter)*** I think that's a great suggestion. I know all of these are being documented. We're trying to be innovative in involving the research community within the RAP process. It's very clear that the most successful RAPs have some sort of a tie to the research community. There are many things that a good research scientist or even a good grad student could do to expedite the process. They are trained in literature surveys and they have access to data that the normal person doesn't. I think your suggestion is clearly one of the ones we will look at this year. It's something that makes a lot of sense.

Q: ***Dan Thomas, Great Lakes Sportsfishing Council***: I would like to address my comments to Dr. Reutter. We commend you on your comments and the education outreach efforts. The sportsfishing community, would like to work with the Council of Great Lakes Research Managers and the Great Lakes Sea Grant network on effecting that communication outreach, research results, biodiversity, biodiversity loss, exotics, habitat enhancement and the many other issues that affect our aquatic communities. Our award-winning website receives between 35,000 and 40,000 hits a month and it is one of the many ideal vehicles that we could use to enhance those information outreach efforts.

R: ***(Reutter)*** Dan, any website that is receiving 30-40,000 hits per month, we would certainly like to get our information into your website. We would like to work with you very much on that.

Q: I am ***Mary Powers***. I am from the ***Kalamazoo River AOC*** and also work with ***the Lake Michigan Forum***. My question is: the purpose of the Great Lakes research inventory is to evaluate the adequacy of research in order to advise the Commission. Will the Council evaluate the inventory?

R: ***(Reutter)*** That is exactly what we're doing with each one of these subcommittees. What we've done is take each one of the IJC priorities and go back through the inventory and try to address how effective are we being at addressing that. We can't simply do it with number of projects. You need to take a much more indepth look at what each of those projects is addressing. To say that 10 projects are dealing with sediments doesn't tell me anything. To look at the various issues and try to identify the gaps and thence once we have identified the gaps, there are two things that need to be done. When a gap is identified, a simple solution is to run to the governments and say we need more money to fill the gaps, we'll do that for sure. Another solution, within our existing programs, is to modify our priorities and try to close the gaps and we have to do that for sure also. Both of those things will be done.

Q: ***(Powers)*** It does seem difficult to make recommendations without adequate evaluation, so when can we expect a reasonable evaluation so more recommendations can be made?

A: ***(Reutter)*** Our subcommittees are reporting back to the Council at the end of March 1998. That will be the end of the preliminary evaluation and we'll move forward from there. We are trying to move very quickly on this.

Q: My name is ***Manfred Kirschlin*** from the ***Bay of Quinte RAP***. The RAP monitoring programs have been terribly cut back to such a degree that huge database gaps have occurred in the monitoring programs in RAPs over the past two years. The public is very uncomfortable to accept progress reports by agencies when we know that a lot of it is based on assumptions but not substantiated by scientific fact. It really reduces the credibility of the RAP process and we feel that monitoring is crucial to prove to everyone involved, the communities, and everyone to know whether the efforts that we make, that are being made in restoration programs, what kind of results they produce, how they impact on the complexity of the ecosystem, and we feel that it's totally impossible to make a credible and acceptable statement on progress if they cannot be substantiated scientifically and it does a dis-service to the RAP process and to some degree is insulting to the public. Thank you.

R: ***(Reutter)*** I think I have to agree with you. The reverse is more true within the research community. We are criticized for studying something to death before we make a comment. In the RAP process, we are looking for ways to move it forward more quickly and we think monitoring is absolutely critical.

Q: ***(Shear)*** Manfred, if you have any suggestions for the Council, please let us know how to improve that situation.

R: ***(Reutter)*** Last question

Q: My name is ***John Carey***. I am with ***Environment Canada***. I am a little confused as to exactly why the Council of Research Managers feel they had to make recommendations regarding the importance of coordination of research. I am not sure exactly what's stopping you from coordinating research and who you thought you were making recommendations to that would achieve this coordination, if the Council of Research Managers can't achieve it. I would like to know what's stopping you from just getting on with it. Why do you need to make recommendations about this?

R: ***(Reutter)*** We are getting on with it. Which recommendation were you referring to?

Q: ***(Carey)*** The recommendation about research priorities being set in a vacuum. Recommendations about overall coordination of research. You are the managers, aren't you?

R: ***(Reutter)*** What we are trying to do with the issue . . . We found that the most effective research, RAPs is a good example, a research scientist, particularly at the universities within the region can just about study a very wide range of issues. We would like to see that research coordinated onto the most important issues and that means, working closely with the private sector, with environmental groups, with agencies, to make sure that the research that is done, is addressing the most important problems, most effectively. Our goal is enhancing the effectiveness of Great Lakes research, so we are moving forward with it. I don't disagree with your comment.

Q: ***(Carey)*** Most of the recommendations that I saw were recommendations that should not a plan or actions that were helping it happen. I guess I would encourage you to get on with it.

L.H. Legault, Chairman, Canadian Section, IJC

Our thanks to the Council of Research Managers and we will now hear from Don McKay and John McDonald of the International Air Quality Advisory Board.

INTERNATIONAL JOINT COMMISSION
GREAT LAKES WATER QUALITY AGREEMENT
PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

INTERNATIONAL AIR QUALITY ADVISORY BOARD

Donald McKay, Canadian CoChair, IAQAB, and Atmospheric Environment Service of Environment Canada

Good morning Commissioners and invited guests. It is a privilege on behalf of the International Air Quality Advisory Board to be here this morning to address you on what we are all about.

I would like to cover five areas this morning in this presentation:

- who we are
- a little bit of what is in our 23rd progress report that was submitted to the Commissioners
- some work that we've done and commented on in the '95-97 Priorities Report
- a joint workshop that was done with the WQB and us. What are some of the recommendations and and what are some of the findings from that workshop that was held this past May
- what does the future hold for the Air Quality Board in the IJC

We were established in 1966. The purpose of our Board was to advise on transboundary air issues. We are a little bit different than most boards you've heard this morning which deal with a specific area of the Great Lakes. We have to cover the total boundary between the U.S. and Canada, not just along the 49th parallel, but also that includes the Alaska/Yukon border as well. So we deal with a number of states and provinces that will have impact. Air doesn't recognize borders and therefore it behooves both countries to look at this in a binational perspective.

We are made up of five U.S. representatives and five Canadian representatives. As mentioned before, for the other Boards, we do this on a voluntary basis. We have other jobs and other capacities but we certainly put a high priority and spend a lot of time and effort in this area. We're made up of federal, state and provincial, and academic type of people.

The next slide and I won't go through all the names, but you will see the representatives and what their affiliations are. And I wish to take this opportunity to introduce John McDonald from the IJC Windsor Office who provides us with secretarial support and also a lot of guidance.

How do we report to the Commissioners and to the public in general? We submit regular written reports to the Commission. We convene workshops and seminars on particular topics and we prepare special issue reports on the various air issues that we need to deal with. So that's a little bit about us and how we operate.

I will now talk about the 23rd progress report that was submitted to the IJC in June. Some of the topics that we are dealing with in that particular report were acidifying emissions, ozone and particulate matter, greenhouse gases and climate change, and the possibility of a bilateral air management framework. I would like to say a few words on each of these various areas:

- Acidifying emissions. A lot of people think the acid rain issue is a dead issue. We've met our commitments. There has been emission reductions. We don't need to worry anymore, but that's far from the truth. I will admit that we have made, and the Parties have made, large strides in the past and continue to make strides on this particular issue, but it's not solved. There is still work to be done. There are still possible controls that need to be taken to drastically reduce these acidifying emissions below critical loads, and in a number of areas, both in the U.S. and Canada, this has not yet been completed.
- Secondly, there needs to be work done because we are finding that what we anticipated to be the recovery rate, given the controls and reductions in sulphurs, is not happening and there is other mechanisms going on, such as nitrification that we have to look at and address because the recovery rate in our lakes are not happening as anticipated. There is work there that still needs to be addressed.
- With regard to ozone and particulate matter, NO_x emissions is one of the precursors for the development of ozone. It is certainly detrimental to humans and to the environment, and it contributes to not only the development of ozone, but acid deposition, eutrophication and visibility degradation. Why the concern with NO_x emissions, for example? This is a pie chart taken from the U.S. NO_x emissions for 1992 which gives an indication of where the primary sources for NO_x is coming from. You'll see from the graph that the two major areas for NO_x emissions is highway vehicles, the cars and trucks we drive every day, and electric utilities. So, in our report, it was emphasized that we need to continue and strive toward reducing these emissions from automobiles and also remove them from the electrical energy generation plants, particularly coal-fired plants that are still, and will continue to be used.
- The next area is the ozone issue. I talk here about the tropospheric or ground-level ozone, not about the stratospheric ozone or UV reductions in this instance. It also has been demonstrated in the medical literature, that there is immediate health effects seen during ozone incidents. Those health effects are still being seen at the former standards that the Parties had in place. John, if you could just show a couple of examples.

This is an example of a study that was done in Ontario, in collaboration with the medical profession and atmospheric scientists and what this shows is a hospital's emissions versus the level of ozone, so if you look along the x-axis you will look at the maximum one-hour ozone level and it says lag by one-day. So what we are looking at here is that if you had an episode today, what would be the hospital emissions tomorrow?

Just to set the scene here is the present Canadian guidelines are 82 ppb. So if you could see where that value is, there certainly is a number of hospital emissions following that episode. The main point I want to show you is if you look to what happens below that recommendation or that level. Below that level, there is still a large number of hospital emissions. The point I want to make here is that what this demonstrates is that there is no threshold level. There is no level at which you can see that no one will be be affected by this ozone incident. Therefore we have to realize that in our setting of standards that there is not going to be a level that says there will be no effects. That doesn't say, well good, well we'll just go down to the lowest level, we can't do that because there are background levels. Not all of the precursors or the development of ozone are caused by anthropogenics, therefore we will not necessarily be able to reduce it down to where there would be no effects on humans, but what we have to realize that we want to try to minimize that effect and work towards that minimization.

Another example, I want to show from a Canadian perspective. This is showing the number of days per year, based on an average from '87 to '91 where, in specific cities, in which the standard level of 82 ppb, the various cities in which the number of days in which this level was exceeded. You say see there is a large concentration along the Great Lakes, and also there are hot spots on the west coast, and certainly into the Maritimes as well. This indicates the necessity to work toward setting standards and trying to understand those standards.

So we go back to the other slide, John. The other interest we have and recommend to the Board is that we help support the new U.S. standards that is being developed. They are better than what they were. It has been 20 years since the standards have been changed and we encourage the U.S. in setting these standard, and encourage Canada to follow suit. And Canada is certainly looking at new guidelines to that. We need to look at VOCs and NO_x controls required in order to reach those standards and to reduce the development of ozone.

On particulate matter, health studies have demonstrated, particularly particulate matter 2.5 (PM 2.5), and 2.5 is the size of the particles that are there, that we inhale. PM 2.5 has been shown that these particles penetrate very deeply into the lung, and cause ill effects in both our children and in elderly, and can have detrimental effects on healthy adults as well. Ozone we may not be able to see totally, but we certainly can see the effects of particulate matter when we look at the haze and urban smog in our cities.

- I want to emphasize with this third bullet, is the linkage. We talk about acid rain and sulphur but there is a linkage here when we talk about a particulate matter or acidifying emissions, there are links between all these various issues that we have. We cannot look at just one in isolation and hope to come to a solution and solve the problem, because there is so much linkages. We have to look at it in totality and hope that if we do look at individuals and bring in certain controls, that we'll also have a positive effect in some of the other issues we have to deal with.
- Again, the U.S. have put out new standards on particulate matter and Canada is looking again to develop new guidelines for this. It is going to take time. It is the new 'emerging issue,' although it has been around for a long time. But these are new standards and are going to take time for organizations, industry and states/governments to put in the correct regulations. It needs to be based on sound science which does take time to develop and which we are all trying to work toward to provide.
- In the report we also talked about CO_2 controls and greenhouse gases. Although the climate change issue is a global issue. It does have ramifications on the transboundary perspective and effects both countries. We felt it important to comment and be cognizant of this issue, even though though it is more global, it has transboundary and regional effects. Any methodologies to reduce these greenhouse gases in the transboundary context will certainly help the global issue as well.

What are some of the things that the progress report has recommended?:

- the monitoring that is going on between the various parties. It seems to be an area which, when reductions are at hand, the Parties consider reducing the monitoring. We are concerned and emphasized the importance of continuing our monitoring programs. How else will we know how well we are doing if we are not monitoring the situation? So even though we make think an issue is solved, we need to continue monitoring efforts to make sure we are. Realizing the expense to maintain monitoring efforts is not something simple, it is not just putting a thermometer outside to measure temperature or humidity, most of the monitoring efforts we need to do, particularly in the air quality and water areas is very expensive and time consuming, not only for the instrumentation but for the analysis. So we need to do it smartly, we need to look at how we can do it in the most efficient and effective way, how can we work with partners, how can we collaborate in order to continue our monitoring efforts in these times of reducing resources. So we made a statement that we need to indicate the importance of monitoring programs.

  As I mentioned, air sees no boundary. It doesn't come up from the south or down from the north and stop at the boundary. It's a continuum. If we are going to set standards for various air quality, we need to emphasize to the Parties that we need to harmonize our standards. We may not be able to come to agreement on the *exact* same number but we need to understand the rationale behind our standard or guidelines setting and what that means in a binational context. If I am in Windsor and hear from a U.S. radio station that the standards are being exceeded or vice versa from a Canadian source, the individual will be able to understand what these standards mean from both countries.

- We need to do bilateral research. For our case, air quality research. Our research and management efforts has to be coordinated, so we are not working at cross-purposes, that we are working together toward one commonality, that is to be able to breathe pure air in both countries.

Where can you read more about our progress report? It is in hard copy, but in this era of technology, we do now have it on a web site, please have a look at it for more details about what our report entails.

I would like to talk about the 1995-97 Priorities Report. For the Air Quality Board, our priorities were to identify the depositions of persistent toxic substances from internal and external sources. Incineration is one of the major contributors to these PTSs in Great Lakes region. We wanted to assess the incineration situation and review activities of both Canada and the U.S. in the long-range transport of atmospheric pollutants.

You can't look at the Great Lakes in isolation. This slide shows you how long it would take for a certain number of airborne pollutants to be transported into the Great Lakes watershed. As you can see within five days, you are taking up most of Canada and U.S. particularly the eastern portions to have contaminants come from these various regions what you may think have no effect on the Great Lakes to reach the Great Lakes and contribute to our problem. From the air point of view, you have to look at a wider area than just the Great Lakes airshed to help us understand and to help us control the pollutants coming into the Great Lakes.

In the past, we always looked at the Great Lakes and the basin as a receptor, not a source. But some of the work that is being done is the last few years has demonstrated, with measurements from the Integrated Acid Deposition Network, that the Great Lakes in some instances are becoming the source and not the receptor. The reason for that is because of programs that have been put into place, the concentration in the air has become much less than the concentration in the water in our Great Lakes, therefore, we end up having an outflux as opposed to an influx. That is a point that has not been discussed very much in the past and something that we may have to look at and try to resolve in the future.

We have looked at the incineration situation in the Great Lakes region and some of the recommendations we want to look at is that incineration does not become a panacea for reduction and recycling. We want to make sure that any incineration that is done is in compliance with U.S. EPA and MOEE requirements. And that we continue to look at technological advances in order to improve anything going out of those stacks. We also want to make sure that jurisdictions achieve *net* reductions in what is happening. We want to look at those net reductions in total by the incineration stream.

The workshop that was held jointly in May of 1997, with the WQB and the IAQAB. This was an excellent opportunity to bring together the water and the air to establish a total picture of what is happening in the region. I think this workshop met that criteria in that there was very good communication and dialogue amongst scientists and policy, both from the water and from the air communities. We need to continue that communication because this cannot be looked at as individual problems, but in totality. There is a need for a continuous forum for exchange of information and resolution of scientific issues, and to get cross-communication from people of diversified disciplines. We stress the need for the Commission to promote the development of this forum and the need to have an application of beyond just compliance tool. We need to look at tools to help develop pollution prevention, environmental auditing and waste minimization.

Some of the outputs from the workshop:

- The need to look at the physical/chemical properties, air and water data. The lack of information in order to put in models or in order to understand what is going on is emission inventory. Although emission inventories are something that we all strive to obtain, it is something that is difficult, but it is the fundamental thing that we need to drive any of the management tools or research modelling work in a timely manner.
- We stress the importance of modelling the total system, both the air, water modelling and mass balance approach. We need to get the people and the information together to get a total picture of what has happened.
- We need to upgrade measurements for the PTSs in all media -- air and water.
- We need a better quantification of our PTSs reduction that has been done.

A couple of examples of work where we are making progress:

- From the Accelerated Reduction Elimination Toxics [ARET] results for PTSs using a base year 1988, you can see where there has been reductions both end reductions to the emissions in 1993, 1995 and projected for the year 2000. This is just on a Canadian program.
- To show you similar, using dioxin releases in the U.S., what they were in 1990, and what we now see in 1996.

So we have a ways to go and work to do but we are making progress. From the research perspective from the binational strategies for research, what we felt needs to be done. We need to look at the reaction rates and the concentrations. This came out of the joint workshop of the WQB/IAQABs. We need to understand what are these reaction rates and concentrations. We need to understand the processes in which we have wet and dry deposition, how are they taking, how they established out of the atmosphere, and how are they deposited. We need to understand the meteorological drivers and how these chemicals are moved around into the atmosphere. When we get better understanding of these processes, along with the emissions information, we then need to improve our modelling studies to understand how they are transported. What is the long-range transport mechanisms and how do they reach the Great Lakes basin?

I throw this slide up just to give you a cartoon about what we're talking about here. If you look at the lower corner, where you talk about emissions, they can be anthropogenic or they can be natural, they are released into the atmosphere and then a number of things can happen in the atmosphere. They can be moved around and take the same type of constituents that they were before when they were released. They can be transformed. This is an area where we have to pay special attention to because you may have a chemical going into the atmosphere that may be benign in itself, but when it mixes with something else in the atmosphere, its toxicity can increase substantially. This is something we need to be concerned and worried about.

We need to understand how these emissions are partitioned. Do they remain in the particulate form? Do they transform into gases as a function of temperature? What is the ratio of that? . . . which is going to change as they move probably from one latitude to the other. We need to understand what the air concentrations are, and what those air concentrations mean. And we also need to understand this thing called the grasshopper effect. What that is, is that we may think by putting in controls in the past, that we have eliminated the problem, but because a lot of these chemicals, particularly pesticides, DDT, which have been banned in the U.S. and Canada, but they have a long persistence rate in the soil. Due to tillage practices, they are then brought to the surface again, lifted by the wind, and moved northward only to be deposited and then lifted again, and moved on further north. So some things we thought we shouldn't be seeing anymore, we are finding; for example, in the Arctic, where DDT was never used. And if it has been banned where is it coming from? We have to better understand this grasshopper effect and be able to incorporate into our models in order to predict where these chemicals are going to end up and what effect they will have when they end up in a certain location.

We also need to understand things about clouds. The last part of what happens when these gases, or particulates end up in clouds and interact with the water in the atmosphere and then finally, what is happening at the surface. How are they deposited, whether wet or dry. By understanding those, we can then get a better handle on providing information to the effects people on saying what effects it will be on your forestry, vegetation, lakes, fish. That gives an indication why the importance of the research.

Future activities for 1997 - 1999. Within the Great Lakes, we want to continue and further investigate the source receptor relationships. Where are these pollutants being emitted? Where are they being received? What happens if we have emission reductions? What happens if we have emissions trading? People talking about emissions trading, and I think the key there is not necessarily against emissions trading, but if we're going to look at how and what effects will that emissions trading have on a particular area. You may say that if there are no effects if there is emissions trading down in Florida, but maybe if a plant in the Ohio valley can let out more pollutants because they've had emissions trading with a less-emission producing plant in Florida, it may have more effects on the Great Lakes. And maybe overall it looks like there's no effect, there may regional effects that we have to take into concern.

The last thing we're looking at for the future is the development by the Air Quality Board, of a transboundary, regional report. In the past we talked about the various issues, whether it's ozone, particulate matter, acid rain, toxic chemicals, whatever, in isolation. One has to search for that information in a number of different reports, what the Air Quality Board is proposing and working toward to have produced by the Spring to submit to the Commissioners is a transboundary regional report which will look and describe what are the air quality issues that we want to deal with and why they are an issue. What are the Parties doing about those issues? What are our recommendations that the Parties should be doing about those issues? Using that as one document as the basis to develop an annual report card on how well the Parties are doing in dealing with air issues across the board. So it's a major endeavour, but it will be an endeavour where we will have one report that people can read and get most of the information, if not all, of what the Air Quality Board is working on.

I want to thank the Commissioners for inviting the Air Quality Board to give a presentation today. And I hope that the rest of the guests have found it informative and I appreciate the opportunity. Thank you.

I guess there's time for a few questions:

Q: ***Elaine Kennedy***. Is there any connection between the Air Quality Board and the joint public advisory committee of the Commission for Environmental Cooperation [CEC]?

R: ***(Don McKay)*** Yes, there is. We strive to work in collaboration with the CEC. They are putting out some reports that we have commented on, and because a lot of the people on IJC boards are also on their boards. There is close collaboration and cooperation, not only with CEC, but U.S./Canada Air Quality Agreement people and other boards as well.

Q: Bruce Walker with ***STOP***, a citizen's environmental group from Montreal. I want to echo your good words about the 23rd progress report. I was reading it on the train down here from here. It is an excellent report. I encourage other people to look at it. You do a good job of taking very technical subjects and making it understandable to a wider range of readers and users. Thank you.

I am glad you mentioned the acid rain issues as coming back. I take this opportunity to mention that a month ago, a significant report on acid rain in Canada was released by the Acidifying Emissions Task Group, a multistakeholder advisory committee, of which I was a member. This report which is only a month old is already in its second printing. If people want to ask me afterwards how to get, I could tell you, it's just a phone call. The key thing it points out essentially is that the science tells us that even with full implementation of Title 4 of the U.S. Clean Air Act, there will be considerable ecological AND, for the first time, human health damage well into the next century unless we do further reduction of SO_X and NO_X emissions which leads me to my question. You just mentioned the Canada/U.S. Air Quality Accord. We all know the IJC has an important, if perhaps little understood role, on that accord. But I am curious to know what the formal role of the Air Quality Board is with regard to the Air Quality Accord, and more specifically, has the board made any recommendations regarding adding other annexes to the Air Quality Accord, specifically dealing with NO_X, ozone and particulates?

R: ***(McKay)*** The role that we have, is as I mentioned to the lady before, we have an interactive role and keep each other abreast of what we are doing. The Air Quality Board has had a role on commenting on the CEC's reports, and we encourage the U.S./Canada Air Quality Agreement people to add new annexes to the Board. I know they are doing ozone, and are looking at particulates.

Q: ***Mike Murray*** with ***National Wildlife Federation***, Great Lake Office in Ann Arbor. I just want to second or third the importance of monitoring in these efforts. They have been mentioned both by the Boards and by the public today. A couple of problems have been noted. One is the government cutbacks on both sides in monitoring efforts; the second, the fact that among researchers, generally monitoring is not necessarily a top priority item. I think they generally have to be encouraged by governments to go that direction or be part of something like the Lake Michigan Mass Balance Study to really do that, so I think the boards at IJC have to encourage the governments to get back into more serious monitoring work for persistent toxics in the Great Lakes. And to try to help get collaborative efforts going as the Council of Great Lakes Research Manager mentioned. Both of those efforts are necessary. The IJC could be encouraging the governments to be putting more money into funding these projects, not just accepting as a given that funding levels are down and that you have to live with that. We don't have to. Economies are going pretty strongly. There's no reason that funding efforts in monitoring and other areas can't be beefed up.

R: ***(McKay)*** All I can do is echo your statements and agree with you totally. The IJC can encourage the government to do those things. As you say, in the monitoring, it is difficult, particularly in the research community in the universities, to maintain that, so I think it is the role of governments to look at this long-term monitoring aspect.

Q: ***Bill Borden*** from ***Lake Michigan Federation*** in Chicago. I want to congratulate the Board not only on its research but on its ability to quantify some of the progress we've made in cleaning up the air. You showed a cell a little while ago which seemed to indicate that emissions have gone down in tons. I know you said that was a Canadian report. It confused some of us, especially from southern Lake Michigan because it seemed in our area that emissions have increased. Even though fuel efficiency standards seem to have brought down the emissions, there are greater increases in vehicle miles traveled. Sprawl and those kinds of things have increased the number of vehicles and miles traveled and so forth. I wonder if you would first comment on that, and then secondly, has the board come out in favour of tightening up CAFE (Combined Automobile Fuel Efficiency) standards; those are real bones of contention now in the U.S. and I wondered if the Board has made and specific recommendations on those?

R: ***(McKay)*** I believe this is the graph you are referring to. Recent reports have shown that there has been an increase in some emissions on there, but overall there has been some drastic reductions, but I wouldn't be surprised if you saw the graph go up in the 1997 ... These are only persistent toxics, there are not NO_X. With regard to the fuel, we have not made any recommendations but we have encouraged more stringent standards that can be put in place.

Q: ***(Borden)*** Do you see the Board taking a stronger position?

R: ***(McKay)*** I can certainly see the board wanting to and it will certainly be discussed amongst the Board. I think from our demonstration, we are encouraging anything that will help us reduce emissions and improve our air quality.

Q: ***(Borden)*** I cannot speak for the entire environmental community but I can speak for Lake Michigan Federation, and I hope that you will take those very strong and very direct stances in the future.

R: ***(McKay)*** I appreciate that.

Q: ***Andy Gilman*** from ***Health Canada***. Don, congratulations on the report. Two comments to encourage your board and also to emphasize for Commissioners. Persistent toxic substances and non-persistent airborne pollutants, you've identified as two of the major issues you are addressing. A lot of time has been spent on the persistent toxic substances from a health point of view and we know the sorts of health effects that are there. They are extremely difficult to monitor, however, because they are reportable diseases. In the case of the non-persistent airborne pollutants like particulates, sulphates, and ozone, they do lead to reportable disease that are easily captured and we know now that the sorts of levels that are occurring in Canadian, in the Windsor/Detroit area, going up to Quebec City lead to billions of dollars of respiratory health costs now, not potentially. So it is extremely important that everybody be aware that this costs billions of dollars in direct health care costs and loss of quality of life now. It's sulphates, it's ozone, and particulates. The second point is that for persistent toxic substances, we're dealing with a problem where by-and large, the sources that used to put these things into the environment are controlled, and now we are dealing with the legacy of persistent compounds in the environment. With these kinds of compounds, the sources exist now. They are controllable sources. They only exist in these concentrations because we are steadily emitting them, and one thing perhaps we could consider is adding ozone and sulphate and particulates to the virtual elimination strategy.

R: ***(McKay)*** Thank you for your comments. I can totally agree with you.

Q: ***Henry Regier***: I would like to raise an issue with respect to the scientific aspects of your report. I have the sense that the reality that you are dealing with here is highly episodic, it's turbulent. Much of what's important is far from equilibrium. I have sensed talking to hydrological colleagues that they are increased and he's seen the hydrology of the lakes and rivers this way, ecologically we're seeing it this way, toxicologically we're seeing it this way. Even in the industrial ecology, this is becoming the dominant approach. Whereas much of the science that we are still doing presupposes steady state, quasi-equilibrium conditions. So I fancy that you have a lot to teach us on how to develop a scientific approach that's far more realistic than much of what we have been doing before. One of the recommendations that came out of the Stockholm Water Symposium this summer was that much of the work on indicators and monitoring should reorganize itself, reorient itself to deal with episodes rather than the rather unusual steady-state periods that sometimes occur. Do you concur with that?

R: ***(McKay)*** Yes, I do. If you look at the work that is done in the air, it is episodic, the ozone, for example, we try to look at what would be the situation in certain times, not as a continuance. Secondly, if you look at the standards that are being developed, that are looking towards episodic ... but you also have to be careful in the sense that you can have a long-time accumulative effects as well. Certainly, from the air side, we do look at particular instances, episodic, but we also have to look at the continuous background type of thing. Yes, looking at the episodic you can get a better handle on the impacts.

Q: ***Ziggy Kleinau*** with ***Great Lakes United***, and also ***Citizens for Renewable Energy***. I was listening quite intently to the presentation and in regard to the point-sources of airborne pollution, I didn't hear anything about pollution coming from nuclear reactions. Now there's about 60 reactors around the Great Lakes basin, especially on the Canadian side, the Candu reactors, there are 20 of them releasing tritium on a daily basis through air emissions that have been found in milk and crops and honey, and I am wondering if you are addressing these sources at all? Are you looking at what they are doing to the Great Lakes?

R: ***(McKay)*** We have looked at those and we will continue. I will take it back to my board members to discuss maybe we have to put a little more emphasis on that.

Q: ***(Kleinau)*** It's just addressing the fluid emissions . . .

R: ***(McKay)*** We'll take it on, to talk to the task force to see what is being done in there as well.

Q: I am ***Sydney Baiman*** from NEIS, Chicago area ***Nuclear Energy Information Service***. It is a followup question to Ziggy. I want to say that also with the emissions from all these power plants; of course, Chicago has 13, you have inert gases of krypton 85, and xenon 133, you have carbon 14 which takes place as carbon dioxide which is killing our trees -- trees downwind from the nuclear powers plants in the Appalachians and in Germany, they are dying. This has increased since the emissions of these gases and the other cesium and strontium and all those. I also would like to talk about the NO_X and SO_X carbon emissions. When you have the radiation emissions, the combination, there has been a study done in India where there is a gas power plant and within a mile there is a research laboratory and this doctor has figured it out that when the emissions come from the research laboratory and mix with the SO_X from the gas plant, the sulphur dioxides change to sulphuric acid. What I am saying is that the radiation mixture here -- you talked about transformation and everything -- helps to transform to make everything more acid and is helping to change the Ph of the northern hemisphere. The whole point is that the base of all this pollution is radiation because it made the whole hemisphere more acid which means that all this added SO_X and NO_X is more detrimental to the earth.

R: ***(McKay)*** Thank you. I am not aware of those studies, but I'd appreciate it if you could tell me who produced those and we'll look at that. Thank you.

Chairman Legault: I would like to break in and ask the two remaining speakers to be as brief as possible. We are running almost a half-hour late with another board to hear from.

Q: My name is ***Sally Billups***, with ***Michigan Environmental Council***. You stressed the need for integration, bilateral efforts for modelling. There is a particularly germane issue with EPA recently proposed rule to cap and reduce emission of nitrogen dioxide in the midwestern states in dealing with the transport issue with north eastern. I know that southern Ontario is impacted by Ohio, and Michigan. I I don't see Canada at the table at this point in that modelling process and was just wondering what are the next steps and what role can the board play in leveraging Canada's involvement? What can be done to bring in Canada, given the transport issue and the airshed you showed geographically, it is obviously an important component to have them there.

R: ***(McKay)*** The Board encourages interaction at the binational level of work on research. As an Environment Canada employee, I will tell you some of the things, we are doing: We have been involved in a number of exercises: the OTAG exercise. EPA is putting out what is called the Model 3 framework. Our scientists, particularly the scientists in my shop as director of Air Quality Research, are being engaged and working with the EPA modelling scientists to look at that platform, not only the U.S. models, but also to put the Canadian models on that platform, so that we can do a comparison between the various exercises to make sure that we are getting similar results. One of the things that bothered me in the past, is we spent a lot of time arguing between the two countries arguing 'my model is better than your model.' This is an opportunity, a lesson learned from the acid rain days, is that we are coming together and have collaborative input so when the policy makers sit down at the table, they don't have to worry about different data sets.

Q: ***(Billups)*** Thank you very much.

Q: Brett Hulsey, Sierra Club: We heard you talk about risk based modelling. We recently analyzed the 1995 Toxic Release Inventory data. It showed the Great Lakes is the Cancer Alley of America. We now release more OCEA cancer-causing chemicals than even Cancer Alley in Louisiana. We starting to find these cancer pockets around Kodak in Rochester. There's a cancer pocket just analyzed in southeast Michigan around automobile plants that broke in the press on Friday. We want to ask YOU to tell the EPA to do health-based standards under the Clean Air Act which they have the authority to do, to deal with these cancer pollutants that ... one in three of us will get cancer; and one of five of us will die from cancer. Especially childhood cancers, there's no other plausible source of cancer in these children than probably environmental contamination. So will you pledge to push EPA to do health-based standards?

R: ***(McKay)*** The answer to that is yes, we will. I have my colleague, my cochair, Gary Foley is with the EPA and certainly we will discuss that and push. The Great Lakes is one of our major concerns.

Chairman Legault: Thank you very much for that presentation. To conclude this part of our program this morning, we'll now hear from our Science Advisory Board. The speakers will be Theo Colborn, Michel Fournier and Tony Wagner. Michel will be giving his presentation in French, so those of you who need the interpreter gadget, can get one at the back of the room at the interpreter's booth. Because we are so far behind our scheduled time, we're not taking a coffee break and will not take a lunch break. We have about 40 people who want to put questions to the Commission, so I hope you will bear with us as we try to make up for the delays in our morning program.

INTERNATIONAL JOINT COMMISSION GREAT LAKES WATER QUALITY AGREEMENT PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

GREAT LAKES SCIENCE ADVISORY BOARD

Tony Wagner, Canadian Cochair, Science Advisory Board

Commissioners, ladies and gentlemen, thank you very much for this opportunity to present, not necessarily a report of the Science Advisory Board are working on. Prior to starting however, I would like to introduce some members of the board that are present, particularly Michel Fournier, sitting at the front here, Brian Gibson is in the audience, George Werezak, Diane Henshel. I would also like to acknowledge our secretary, Peter Boyer and Michael Gilbertson who is secretary to the Ecosystem Health Workgroup. While I am in the process of acknowledging individuals, I don't know whether Doug McTavish has been acknowledged. I was out for awhile, but Doug has concluded his tenure as Director of the Regional Office in Windsor, and if we have not yet acknowledged him with an applause for the work that he's done on the Water Quality Board and the Science Advisory Board, Doug has been an immense value to supporting the work of the Commission. I would like to do that now, please. Doug, stand up.

My Cochair, Michael Donahue, expressed his regrets for not being able to be with us this morning, But he does extend his best wishes.

The Science Advisory Board operates on a structure of three working groups. All of the members of the board are assigned to one of the working groups and those workgroups are subsequently augmented with experts in various fields. The three work groups are ecosystem health, parties implementation, and emerging issues.

I'm going to take a few moments to refer to the categories of recommendations in the Priorities Report. I commend the report to you. We will not take time to review what's in here, but it is worth reading.

- The first two categories of recommendations are outputs from the Ecosystem Health Workgroup and one of the roles of the Science Advisory Board is to bring together, debate and discussion among scientists on scientific issues.
- The next are with respect to the PCBs, the New Equilibrium within the Great Lakes basin.
- The RAP process as well as the State of the Lakes Ecosystem Conference recommendations are from the Implementation Workgroup and we have comments relative to the IJC's future role with regard to evaluation of the RAP process, and also how the State of the Lakes Ecosystem Conferences could be more useful
- The last three are outputs of the Emerging Issues Workgroup. I would like to make reference to Ambassador Fraser's comments from last night about traditional economics determining that the Exxon Valdeez disaster was beneficial to the gross national product of a country, there's really something wrong with this in terms of how we value the environment. So we do make a recommendation in terms of changing the way we go about evaluating our system.

Without taking up more time, we are going to have two speakers speak on areas of their expertise. The first will be Dr. Theo Colborn. Theo is a member of the Workgroup on Ecosystem Health. She will be talking on results of transgenerational exposure to persistent toxic substances. Theo works with the World Wildlife Fund in Washington and she's also the author of a recently released report "Our Stolen Future." I would commend that report to you as well. Following Theo will be Dr. Michel Fournier, and Michel is with the University of Quebec, the National Institute of Scientific Research. He will be speaking on immunotoxicity of persistent toxic substances. Theo

Theo Colborn, member, Workgroup on Ecosystem Health and World Wildlife Fund, Washington, DC

I was told to do the history, tell you everything about PCBs and everything else I know in ten minutes. I am going to speak fast and do the best that I can so we can keep to our time allotment.

In the 1960s, wildlife biologists began to notice that wildlife populations were disappearing around the Great Lakes, and many were obviously destabilized. Over the years, on closer examination, they began to notice that the animals were dying before birth or hatching, if they were fish, birds or reptiles. If they survived to birth, many times they did not thrive through to adulthood or were incapable of reproducing.

This is a slide of a bald eagle that was born in 1993 on the shorelines of the Great Lakes. One of the obvious problems that they are seeing still in the birds around the Great Lakes are crossbills. The research also discovered that there were behavioural changes going on in the wildlife populations, that male fish and birds were not making it through to sexual maturity and actually had gonads from both sexes.

There are thyroid hormone problems even today. This is a slice through the side of the head of a coho salmon. You can see that bright red area is the slice through the gills. The thyroid is that big mass right there down at the bottom of the gills. You shouldn't see that thyroid gland. That's an extremely large gland. Under ordinary conditions, you have to take a piece of jaw into the laboratory and do a slice and look for the vestigial thyroid cell tissues. This is going on in Lake Erie today, even after the eutrophication has been resolved. In the last five years, they are finding these thyroid glands exploding. Something is still going on. The interesting thing about the work is that in every case, except for this thyroid problem, in most of the populations, the more highly contaminated were the most affected.

Now, what the wildlife biologists did was to collaborate with others. They went back into the laboratory and using the same manmade chemicals that they found in the tissues in the animals in the wild, they were able to replay many of the problems they were seeing in the field. The most important thing that came out of this research was the fact that they discovered that the mothers were serving as a pathway for these manmade chemicals to their offspring -- either in the womb or in the egg. This knowledge combined with the worrisome reports were coming from a team of psychologists, Sandra and Joe Jacobson about impaired neurological development of children whose mothers had consumed Lake Michigan fish prior to their pregnancies, led to a concerted effort by the Agency for Toxic Substances and Disease Registry [ATSDR], which is a subdivision of our Health and Human Services in the United States. They began to investigate the human health problems around the Great Lakes basin. They have just right now -- within the last couple of weeks -- released their first results and these results are available. In essence what they have said is that using the weight-of-evidence approach and looking at the work of wildlife biologists, toxicologists and epidemiologies, there is clear indication that populations continue to be exposed to PCBs. In this case, they are talking about human populations, and that significant health consequences are associated with these exposures. Now, this is an outstanding statement coming from a federal agency.

What I would like to do now is take you back through some of the research findings that led to these conclusions. I think we should start with the seminal work of Sandy and Joe Jacobson. Infants born between 1980 and 1981 of mothers who ate two to three meals per month, that's not many meals per month for someone like me who is a fisheater, of Lake Michigan fish at least six years prior to their pregnancies, were behind at birth in neuromuscular maturity when compared with controls. This deficit was associated with levels of PCBs in the unborn baby's blood which the mother shared with her baby. At age 4, again based on the levels of PCBs in the unborn baby's blood, these children had difficulty with short-term memory. At age 11, the most highly exposed children during gestation, had an average 6.2 IQ deficit and some were more than a year behind their peers in word and reading comprehension. Those in the highest group were more than two year behind their peers.

When assaying the blood of these children at age 11, the children's PCB concentrations were not associated with their achievement measures or their IQ scores. In other words, if the Jacobsons had only tested the children's blood at age 11 for PCBs, they would have ruled out PCBs as a causal agent. This is extremely important to keep in mind, especially for researchers and health professionals, when seeking causal links with synthetic chemicals. Millions of dollars have been spent and are still pouring into cancer research studies in the U.S. to look at the concentration of contaminants in diseased tissue, such as cancerous breast tissue, seeking a causal link with specific chemicals. Unfortunately if the study finds no association, the press immediately jumps to the conclusion that chemicals are not involved at all and writes the issue off!

What if the breast cancers were associated with the synthetic chemicals that the women who developed breast cancer were exposed to before birth? Chemicals that were in their mothers. Chemicals that sensitized them to cancer before they were born. I can't go into it today, but there's a whole body of new research that lists chemicals that when they are in the womb, during early prenatal development, can actually lay down enough hormonally responsive tissue in the secondary sex organs, so those individuals as they mature are definitely going to be more sensitive to the natural hormones they produce and any synthetic chemical they might encounter later on in life. This is a very serious consideration to take into mind when we are thinking about how we look at exposure and make links.

Also important in this Jacobson study was the mother's fat approached 1.25 ppm in PCB content, the intellectual detriments among the children became significant. Now, as the authors of this study pointed out, one does not have to eat fish to accumulate this amount of PCBs because PCBs are found in meat, dairy products, fast foods, ocean fish, ice cream and even vegetarian diets. This is not a problem that is linked only to the Great Lakes. For example, average PCB fat levels around the industrialized world run at about 1 ppm in human fat, suggesting that a sizable proportion of the general population is being affected. In some regions this could be more than 11% of the children being born, and up to as much as 20% of the children being born today.

In a recent study done by the Center for Disease Control just found that there is a four-fold increase in probability of developing non-Hodgkins lymphoma when body fat burdens exceed 1.07 ppm of PCBs. I know you're all sitting there wondering what your body burden is of PCBs.

In another mother/infant study that commenced 12 years later than the Lake Michigan study between 1992 and 1995, infants of mothers who, again, ate approximately 2-3 fish meals a month of Lake Ontario fish over their lifetime prior to their pregnancies, when compared with controls, also displayed the same neuro detriments at birth as the Lake Michigan infants. When tested with an additional set of tasks, were found to be hyper-reactive similar to the effects reported in rats that had been fed Lake Ontario fish.

Using new test protocols we are just finding new reports coming out from this study. The babies in this study were also found to smile and laugh less. They expressed more fear. They were more difficult to sooth and calm down than control babies in this study. These changes in temperament were associated with the mother's lifetime consumption of fish, not just what she ate during pregnancy or recently near her pregnancy. These findings suggest that PCB concentration in Lake Ontario are still not low enough to protect human health.

One more study: in the Netherlands, another large healthy-mother infant study was undertaken across the general population from an urban to an industrialized area, not necessarily looking at fisheaters. Those infants of the mothers with the highest PCB/dioxin levels -- they got more sophisticated with their chemistry by the way -- they exhibited psycho-motor deficits at three months. Now a different battery of neurological development tests were used in this study, making comparisons difficult, and just having listened to Don McKay, I think that it's obvious that somehow/someway we've got to figure out how to harmonize the presentation of the results or studies when we are doing some of these very long-term, expensive human epidemiological studies.

Other biochemical measurements were also added to the testing protocol in this study. They looked at thyroid hormone levels in the infants and found that they decreased as the PCB/dioxin levels increased. The thyroid hormone plays a critical role in brain development. Today there are increasing reports about the impacts of PCBs, dioxins and pesticides on the thyroid system -- the brain and behavioural development. By the way, we have a new addition of a journal coming out within a month with a whole compendium of papers discussing this topic. In addition, in this study, they also looked at the infant's immune systems and found that they were quite different. They varied in the dose-response manner -- again with PCBs and dioxins. Michel is going to speak about the immune system in a minute. But what this means in the long term is yet to be determined. Again, in this Dutch study, a sizable proportion of the population was affected.

In all three of these studies, and another one from North Carolina, it was the exposure prenatally -- 266 days back from the day of conception. We usually don't think about that time. It was not the result of breast feeding that led to the childrens' impairment. It was something in the womb that changed their course of development. It is important to note that in each of the human studies that I just mentioned, even though the detriment among the children were statistically significant at the population level, their loss would not have been recognized by the infant's parents or doctors. It took skilled psychologists and technicians to quantify the changes in the children. These children are not obviously sick as Andy [Gilman] said 'we don't look for these parameters in our health registries.' Physicians and public health officials would have missed these effects. These children are not retarded or obviously different, nevertheless they are not developing to their fullest potential and certainly the quality of their lives and their parents' lives, and I'm a grandparent, the grandparent's lives, will be reduced as well.

The economic and social costs of this loss at the population level have not been calculated to date. Economists are now considering the lifetime earning loss for each IQ point reduction per year class of children born. From the experience with lead, this could mean billions of dollars in lifetime earnings per year class of children born in the U.S.A.

As a group of experts who met to look at the impact of endocrine disruptors on the developing brain and behaviour reported recently that they were certain the widespread loss of this nature can change the character of human societies and destabilize wildlife populations.

In order to close, I have something I want to advertise for Andy Gilman here. This was the report that was just released on Friday by Health Canada that supports quite a bit of what I have just told you. I think you should all take the time to look at this. We have two government reports that are telling us that something is happening from the day of conception -- 266 days -- until birth that's changing the destiny of our children. We have GOT to wake up and pay attention to this. Thank you.

Michel Fournier, Cochair, Workgroup on Ecosystem Health, and National Institute for Scientific Research, Montreal

I will try to give my presentation in English, but you may need the translation device anyway. I am very pleased and honoured to speak on this occasion, especially after the presentation of the other boards.

I have been given the task of providing you with the evidence on the toxicity of persistent toxic substances. About 20 years ago, a group of researchers began to be interested in looking at the immune system as a target for the toxic action of environmental contaminants. They started a series of experiments in which they exposed different laboratory animals, such as mice or rats, to different chemicals present in the environment. In that case, it was dieldrin. After several exposures, they looked at the effects on the immunological endpoints and they found with several chemicals, like dieldrin, there were several components of the immune system that were affected. The effects on the immune system was strong enough to compromise the role of the immune system which is to protect the organisms against bacterial disease or viral disease or cancers. So after 20 years of research in that field, it was clear that exposure to several persistent toxic chemicals that the immune system may be suppressed and dysfunctional. This could lead to increased susceptibility to infection, increased susceptibility to cancers, and development of several autoimmune diseases.

But all this work was performed in lab animals so the next question was do we have the same type of effects when we are dealing with wildlife species? So a series of experiments using the immune cells coming from various species was undertaken in an attempt to see if the wildlife species are sensitive to chemicals. With the use of these cells and in vitro exposure to several chemicals, we were able to point out that we have suppression of functions and that all species studied to date were affected. There was no specie that was exempt of effects. With comparative studies, we were able to point out that the aquatic species were the most susceptible. As an example, you have here, dose-response studies of exposure to several metals on clams. Another example is the effect of DDT on beluga whales in competent cells. You can see that at some concentrations we have toxic effects of DDT on the competence of immune cell in vitro. Using this kind of approach, we can compare the sensitivities of all the species studied to date. You can see from the results that aquatic species, especially fish, bivalves, are the most susceptible to persistent toxic chemicals whereas mammals and humans are more resistant but they all present toxic susceptibility.

The second question is what is the real exposure from chemical mixtures and do we have effects with wildlife species. A series of experiments have been started using wildlife species and lab controls with environmentally relevant cocktails. This was done using earthworms bivalves several types of fishes and even an experiment performed using seals. The type of results we have in that case, you have lesser scaup that were fed zebra mussels coming from the Great Lakes, you can see the development of the immune suppression following time of exposures. Also, here are the results of America place that were exposed to marine sediment coming from the St. Lawrence estuary. You can see in columns 2 and 3, the suppression of immune function with sediments coming from the St. Lawrence Estuary as compared to a clean sediment in column 1.

Using those approaches, it was possible to demonstrate that wildlife species are sensitive to chemicals as they are present in the environment. So the next step was to get into the field and identify effects directly in the species in the fields and try to correlate these effects with body burdens or exposure to specific contaminants. This has been done to date in several species: bivalves, trout, terns, herring gulls, alligators and polar bears. There is a nice study that has been completed in the Canadian Wildlife Service with terns and herring gulls, in which they were able to put in correlate exposure to PCBs and impairments to immune function. The type of correlation as presented by Theo Colborn from the Dutch study. As an example, you have results of fish exposed to pulp mill effluents directly in the Maumishee River where you have suppression of immune markers or even, in the case of alligators, the comparison of the immune competence in alligators living in two different lakes, a clean and a highly polluted one in Florida.

In humans, as presented by Theo, we begin to have epidemiological evidence that we have immune impairment related to exposure to chemicals. We have other evidence but those are coming from normal accidental exposure or from occupational exposure that immune system in human is sensitive and the types of detrimental effects that we have noted with wildlife species can be present in humans in relation to exposure to chemicals.

In summary, the immune system may be the target for the toxic action of environmental contaminants, auto-immunity allergy, increased susceptibility to infection and cancer are among the consequences to exposure. There is to date no species protected. There are some species presenting more sensitivity than others but again, there is no species exempt. Actual environmental levels of contaminants are immuno-toxic in several species as shown by the field assessment of immune function in wildlife. Thank you for your attention.

Tony Wagner, Cochair, Science Advisory Board

Thank you Theo and Michel. The Ecosystem Health Workgroup is presently preparing a final report to the Commission, based on a health conference that took place in Montreal in May, sponsored by Health Canada, Health Quebec and the Agency for Toxic Substances and Disease Registry in the U.S. That was followed by a policy workshop that took place at the beginning of September in Wingspread in Racine, Wisconsin. Based on that, policy advice is being prepared for the Commission to be used by them as part of their next Biennial Report which we expect to be out some time early next year.

Just because what we are experiencing in the Great Lakes basin is not unique to the Great Lakes basin, but essentially global, there's no reason for us in the Great Lakes who have the leading edge technology, leading edge scientific wisdom and knowledge to not be world leaders in trying to confront the issues that you have just heard. Mr. Chairman, that is our presentation.

L.H. Legault, Chairman, Canadian Section, IJC

Are there any questions? We would like to keep them brief as possible.

Q: Good morning. My name is ***Terry Yonker***. I am from the ***Lake Erie Alliance***. Approximately five years ago, I chaired a project advisory committee for a project funded by the Great Lakes Protection Fund for over a third of a million dollars and it was to respond to Annex 12 of the GLWQA under early warning systems. That is to study the feasibility of establishing a Great Lakes regional biological specimen bank. The project advisory committee was made up of a binational group of government scientists, university scientists and others who concluded that such a bank was feasible and ought to be developed in the Great Lakes. One of the major concerns we had was that all of the biological specimens that go into the research that we were talking about here this morning, we are occasionally losing. In the future we may not able to do those retrospect analyses that are all important to the future research within the Great Lakes. Would the Science Advisory Board entertain a review of those recommendations and the possibility of establishing such a bank in the Great Lakes?

R: ***Tony Wagner***: Terry, I appreciate your comments. And thank goodness for the specimen bank at the Canadian Wildlife Service. In their wisdom, was established in the 1960s and 1970s that we are able to retrospectively give us a good handle on the rates of decrease of many of the substances that are in the environment and the cause for the extirpation of many of the native species in the Great Lakes basin. Reflecting back to some 10 years ago, a specimen bank was very much on the agenda of the preparation of the Great Lakes National Surveillance Program [GLISP] as was discussed very briefly yesterday morning in the recommendation to the Parties and I believe that the resurrection of GLISP is on the agenda. I would certainly encourage those in the audience who have an impact on the development of GLISP to consider specimen banking as a component of the Surveillance and Monitoring program. Thanks, Terry.

Q: ***Daniel Green***. I would like to ask Dr. Fournier. Bonjour Dr. Fournier, merci ... from Niagara Falls.

Dr. Fournier, we have heard recently in the Chesapeake Bay environment certain bacterias, almost like fish/flesh-eating disease, Pfeisteria, if I am not mistaken, have cropped up. These disease has been transferred from fish to fishermen with some effects. You have mentioned to us, reduction in immuno-competency of certain cells in certain animals. Of course, the question, what does this all mean in the immune response of these organisms? Have you gone a step ahead saying well this is what we've measured and this is the results of the effects of this immuno-reduction in the species?

R: ***Michel Fournier***: I can answer that by giving an example of an experiment that has been done in the Netherlands in which they fed the seals with fish coming from the Baltic, as compared to fish coming from the Atlantic. Fish coming from the Baltic are having higher contents of PCBs and other organochlorines. The seals present immune defects and also viral disease occurs in these seals. Looking then at the immune response along with the disease and the viral exposures, it's was also decreased so that's probably the first demonstration outside lab animals with a real situation, that exposure to chemicals may lead to decreased resistence to infections and reduction of populations.

Q: ***Daniel Green***: I would have one more question for Theo, if you don't mind. Dr. Colborn, we have heard this week of a newly-published study in the New England Journal of Medicine from Harvard explaining to us that there seems to be a negative correlation between instances of breast cancer and concentrations of PCBs and DDT in breast cancer. Could you comment on that study?

R: ***Theo Colborn***: Yes, I addressed that in my talk. I said that we were spending millions of dollars looking for chemicals in the tissue of the women who have breast cancer. We are designing type 2 studies, which in other words, you get false negatives. These studies, in effect, are designed to create false negatives. They are not looking in the right place. I said they must go back and find out if these women were exposed in the womb and whether their mothers were exposed.

Q: ***(Green)*** So in your opinion, this study was not well designed?

R: ***(Colborn)*** These studies are not well thought out at all, based on our current knowledge of the mechanism of actions of these chemicals.

Q: ***(Green)*** Thank you.

R: ***(Colborn)*** I'm glad you brought that up, Daniel.

Q: My name is ***Ian Brindle***. I wanted to commend Dr. Colborn on the studies identifying problematic concentrations at this point in time. It reminds me of the studies that resulted in lower standards for lead in the environment as a result of behavioural criteria. I hope that we can look forward to such type of criteria being used to develop new standards for chemicals in the environment. The second point I wanted to make is that I continue to be troubled by the lack of comment in documentation from many sources relating to the International Joint Commission and by various other organizations, on the compounds that are being released by the dumps along the Niagara River. I refer specifically to this group of fluorinated compounds that have been identified by Ronald Hites, that have been found as far away as eastern Lake Ontario where there's significant potential for these to have an impact, but they seem to get scant attention, except from Dr. Hites and his group. I hope that the Science Advisory Board will at some point take this out and do something with it.

R: ***(Wagner)*** Thank you very much for the comment. I appreciate your comments and the work that Dr. Hites has done. He's traced a lot of substances, markers from the lake back into, say Hyde Park, for instance. I would suggest that a lot of the work that's being done under the Declaration of Intent by the four parties on the Niagara River, hopefully, is identifying part of those connections and certainly the release of the stage 1 report of the Lake Ontario LaMP might provide us a source for comment as to whether or not they are appropriately addressing the issues of releases from the sites alongside of the river.

Q: ***(Brindle)*** As far as I know, nobody is looking at these as potential endocrine disruptors. I think it's that that particularly concerns me.

R: ***(Colborn)*** May I interject something here. Remember the ATSDR report and the Jacobson report all said "PCBs and their co-contaminants." Unfortunately, the number of chemicals that are in the environment got way ahead of our detection techniques and the money to go out and detect them. But we have looked at a handful of chemicals and used them as our 'chemical indicators.' There could very well be associated with a lot of other chemicals that are out there. Now the EDSTAC process, which is the Endocrine Disruption Screening and Testing Advisory Committee is working on this particular issue that you just raised. How are we going to look at the 70,000 chemicals out there and prioritize them? This consideration is being taken into their plans for how we are going prioritize and start looking at chemicals.

But I would like to go back to one thing. I get very nervous when I hear people talking about standards. We have to find a new approach to deal with chemicals. Some of these chemicals have no threshold. I want to explain something to you. You're alive, you are standing there, you are producing hormones all the time, you're gasoline is on, your system is running. We are dealing with a system that's running, your system runs at a little different level of testosterone and estrogen than someone else over here. There is no threshold for the kind of chemicals and the mechanisms that we are talking about. You've got to start thinking about that. When you think about reducing the levels, we have got to think about maybe reducing the mix, the numbers of chemicals that are out there, because we're setting ourselves up for all kinds of unexpected, interactive reactions. When you're dealing with that precious 266 days, we know it only takes one hit to make a change. These are the things you are going to have to weigh in your decisions when you start seeking changes. Be careful of the terminology you use and don't get locked into the old paradigm.

Chairman Legault: I would just like to note that we will not be able to accept any more speakers, except those that are now at the microphones. Please only one question and very brief.

Q: ***Bill Borden*** from ***Lake Michigan Federation***. Two months ago, U.S. EPA sponsored an endocrine disruptor workshop in Chicago. A representative from the Chemical Manufacturers Association denied any direct quantifiable links between organochlorines and human health effects. So my question, if you wouldn't mind taking off your very respected scientist hat and putting on a policy hat, is; In the year 2002, when there is finally established a direct and quantifiable link between one of those chemicals and human cancers, and a coalition of environmental groups gets together and sues the chemical manufacturers successfully for $500-billion, is that what it's going to take to move the removal process along and push the virtual elimination strategy forward. Is that's what it's going to take?

R: ***(Colborn)*** No, I don't think it will, because there are too many chemicals out there. You're never going to be able to do the human experiment you want and expose a single, pristine individual to one chemical and prove it. When you get with a bunch of lawyers in the courts, you're not going to win. Believe me, don't go for suing. Let us educate the manufacturers that the product they're using is not safe. Believe me, already, out of that EDSTAC process, I know this is happening, scientists are coming and sharing their ideas on how we may be able to screen and test the chemical for one of these effects. We don't have a validated screen to test a chemical today for endocrine disruption. But I know that the industries are listening, they're going back to their laboratories already, they're scrambling, they're trying these things, and they're testing their chemicals.

The bottom line, of course, is the dollar, and the company that can come out and say: we've tested our product with every one of the possible screens and assays that's available now, and we'll tell you it's safe up to this point is going to be the company that survives through 2050. I think what we have to do is work hard to bring along the scientific knowledge, catch up with the technology that got us in the mess we're in. I don't believe in turning to technology to solve our problems by the way; that's a big mistake, but basically, this is the way we're going to do it. It's going to happen. We are going to get changes in products long before we get the legislation, even on the books, and then figure out how to enforce it. Truly, I am thoroughly convinced of that, but YOU can't let up.

The public and IJC, and other international organizations have to form together and unite and address this on an international level. Believe me, when the truth comes out about some of the plastic products we're using, the manufacturers of these chemicals took off just like the organochlorine chemistry industry did. We plodded along and we've been mapping the route of the organochlorine chemicals. We're just beginning to realize that we should have been following the polymers, the monomers that went into the polymers, and the additive that we've been putting into our plastics. It's a lot more complex than what we have been addressing here today.

R: Hello, my name is ***Jeanna Paluzzi***. I work day to day in the ***Clinton River AOC*** but I am also affiliated with the ***Lake Erie and Lake Michigan Forums*** in the development of LaMPs. One comment I would like to make the next time we meet in two years is that we should have your presentation and other related to health effects on October 31, Halloween and then talk about the actions that have been taken on All Souls Day, on November 1st. Secondly, I am also quite thankful that ecosystem economics have been taken up as an emerging issue. I would wholeheartedly offer my participation in anything that we could do to move that along. I am especially interested in trying to find any documentation of the economic benefits of environmental protection. We are finding in the State of Michigan, that through some heavy lobbying by the Homebuilders Association and Developers that we've had two iterations of amendments to our subdivision control act which provides for unbuildable lots. Given the burden on local governments, and making landuse decisions, it makes it increasingly difficult to have rational development within our watershed in the context of an active wise-use movement when we've got legislation that creates unbuildable lots. Anything that this task force or group could do that might be developed around ecosystem economics and getting towards documenting the benefits of developing stormwater management plans up front, rather than reacting to development as it occurs would be helpful. The Clinton River Watershed Council, 20 years ago, came out with a document called "Stormwater Management Planning for Michigan Communities" which documented a ten-fold decrease in capital infrastructure and improvement costs by having the planning process in place. We're now launching a two-year effort to take a look at the functional values of wetlands in our watershed. Anything that we can get our hands on to work with the development community, with consulting engineering firms, with site planners, landscape architects, and encourage them that there is an economic benefit, not only private sector benefits, but also community benefit, for protecting these community assets would make my job tremendously easier.

R: ***(Wagner)*** Thank you for your comments. I want to remind the audience that the Commission is searching for advice on priorities for 1997 to 1999 and I believe a book is out on the table to assist the public in providing that support. Our recommendations are to the Commission and we certainly take guidance from them as to how the next two years will evolve, but I appreciate your comments.

Q: My name is ***Tim Eder***. I am with the ***National Wildlife Federation***. I'm glad I get to make the last comment today for the benefit of the SAB and the Commission, I want to know how much we appreciate the work of the SAB and that you, Theo and your colleagues are doing for all of us. The work that you've done to identify health effects, particularly from endocrine disrupting chemicals, has been absolutely crucial to our understanding of the nature of the problem of toxic chemical contamination in the Great Lakes. It demonstrates and provides the justification for the wisdom of those policies of virtual elimination and zero discharge in the Water Quality Agreement. It gives us the inspiration and motivation to keep working against what sometimes seems to be such impossible odds. What we have learned, of course, is that the most important problems are not what we thought they were ten years ago, they are not caused by cancer, they are caused by those chemicals that transmit their effects from one generation to the next by disrupting the development system, and the endocrine system, and our immune system.

I also want you to know that, notwithstanding your comment Theo, about the problem with trying to control these substances using standards, that this work has resulted in some direct action by governments. This work and this body of knowledge that you brought to our attention is now the basis of fish consumption advisories. It's that research that forms the basis of providing advice to anglers and consumers of sport-caught fish. It is also the basis of water quality criteria that we now have in place for the first time in the Great Lakes to protect wildlife. For the first time, we have chemical standards to protect the health of wildlife. They may not be perfect but that is progress and I think that is due almost directly to the work of you and your colleagues. So, to the Commission, I hope you continue this work and I want to say thank you.

INTERNATIONAL JOINT COMMISSION GREAT LAKES WATER QUALITY AGREEMENT PUBLIC FORUM

Niagara Falls, Ontario
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FIRST NATIONS/NATIVE AMERICANS PRESENTATIONS

Rick Peters, EAGLE Project, Assembly of First Nations

Greetings. My name is Rick Peters. I work with the EAGLE project for the Assembly of First Nations. We are the 'other' sector, as referred to in this document, but hopefully after the presentation, you'll get an idea that we are much more than that. I would like to thank everyone for being here. *Neutz Wawwa.* Thank you. *Merci beaucoup.* The Commissioners, the individual environmental groups, government agencies, etc. and to acknowledge their collective efforts in restoring the water quality of the Great Lakes basin. Also I would like to thank Great Lakes United for providing us with this opportunity.

At this point I will layout the framework of our presentation and will briefly address the various areas and we'll touch on consultation and participation, human health effects from our point of view, include social, cultural considerations. There's no difference between the two. Water quality, water quantity, persistent organic pollutants, biodiversity, and partner management schemes. We'll be submitting this document to the Commissioners in our request for some formal response on the recommendations in there.

At this time, I will personally address the context of the Boundary Waters Treaty and the GLWQA, briefly. After 25 years, it is time to review our participation (at this point it's not 25 years) but our capacity in these forums is changing. We have to ask ourselves some difficult questions. Does our participation solely benefit the mandate of governments as consultation or political correctness, and does our participation as First Nations and tribes, at the level of 'special interest groups,' or other sectors somehow negate and take away from our sovereign rights, our treaty rights and our aboriginal rights to self-government and self-determination? Does our participation in anyway directly benefit our communities? We raise these questions out of respect and out of our responsibility to our communities to ensure that the rights and obligations of all concerned are fulfilled. I wish to also raise a couple of other questions regarding "Do the Parties of the GLWQA recognize the inherent, sovereign rights, and the treaty rights of the First Nations and tribes and do they place any obligation on themselves not to pollute the boundary waters of First Nations communities? The answer is no. There is no evidence anywhere in the Agreement or the Boundary Waters Treaty. Efforts to preserve the Great Lakes ecosystem, do the Parties or the function of the IJC have they been involved in adopting common objectives, development and implementing cooperative programs and other measures with First Nations and tribal governments? No, there is no evidence anywhere in the reports or the functions of the IJC.

I'll skip through some of these obvious questions and obvious answers and get to the point of 'Has the Parties or the IJC responded to the past two recommendations put forth in Windsor Biennial Meeting in 1993? The Duluth meeting in 1995? To the calling for the appointment of the First Nations and tribal commissioners? No, there's no answer anywhere that the First Nations or tribes were even there. Correction, in 1993 there were some nice native art work on the cover of the Biennial reports. Things looked promising on the surface. Was there any response to the Duluth resolution put forward by the Grand Chiefs of Ontario who represents 134 First Nations governments in the Ontario basin; 63 of which are located directly on the basin? No, there was no evidence that he or any of the other First

Nations representatives were there. So, regardless of the obvious answers to these questions, we've come back in the spirit of friendship and cooperation. Our elders have taught us to be patient people. It is through the spirit of friendship and cooperation that we put forward these recommendations. I'm running out of time.

The 1909 Treaty was signed during a period of overcolonization and assimilation of our people, during 1871 roughly through 1930. The Great Lakes Water Quality Agreement was signed only three years after the 1969 White Paper Policy; both the GLWQA and the 1969 White Paper Policy were signed by Pierre Trudeau. The White Paper Policy was set forth to assimilate and eradicate the rights of First Nations people. The apparent absence of any meaningful legislative recognition of our inherent rights, treaty rights, and aboriginal rights suggests that this colonial mentality has been institutionalized and prevails in 1997. We do not surrender the care of the plants, the animals, the birds and the fish, or the water to the Canadian and U.S. governments. We do not surrender our right to help the environment within the boundaries of our own lands. We do not surrender the right to harvest healthy fish and wild game for our sustenance. We do not surrender our traditional way of life or the quality of that life to Canadian/U.S. governments. In summary, we do not surrender our lakes, our health or our future.

Pam Sky, member, Six Nations Confederacy, Cayuga Nation

Hello, my name is Pam Sky. I am a member of the Six Nations Confederacy of the Cayuga Nation. Also I am community member on the EAGLE project. My topic today would be human health effects on aboriginals in the Great Lakes basin. The three topics I would touch on today are: environmental contaminants, social/cultural impacts, and my recommendations.

First, I would like to talk about environmental contaminants. Aboriginal people in the Great Lakes basin are exposed to a large number of environmental contaminants which are causing severe health effects. For example, residues of chemicals, such as PCBs, DDT and dioxins have been found in the blood, fat, tissue and mother's breast milk. Also mercury has been detected in hair samples, hair analysis of aboriginal people. Toxic pollutants have been linked to cancers, birth defects, diabetes, reproductive and hormone-based disorders, immunological based disorders, such as asthma, emphysema and allergies, neurological disorders, auto-immune syndromes, and multiple chemical sensitivity. Aboriginal people are at a far greater risk because we rely on fish and wildlife for a large part of our diets, which brings me to my next topic, social/cultural impacts.

In many of our communities, there is a great concern about environmental contaminants and traditional foods. Our people are cutting back and sometimes eliminating the traditional foods -- consumption of fish and wildlife -- this sudden change in diet may be a contributing factor to the increase in diabetes, which in some of our communities has nearly reached epidemic proportions. There has been negative and devastating effects on the quality of life of our people in the sense that it has affected our psychological wellbeing. Therefore it is important that we assess the environmental impacts on the social/cultural being of our people. Now I would like to read off my **recommendations to the IJC:**

- The IJC should initiate specific research program to assess and monitor how and to what extent aboriginal people are particularly susceptible or exposed to environmental degradation and hazards. These should include, as necessary, research and data collection on specific subgroups of First Nations and tribal communities in the Great Lakes basin.
- The IJC should implement, through national and binational legislation, the protection of indigenous, traditional, ecological knowledge, innovations, practices and skills, including those concerning traditional medicines and biodiversity.
- The IJC should ensure that indigenous knowledge and technologies are protected, preserved and maintained, respected as envisaged in the convention on the biological diversity, safeguard their intellectual property rights, and encourage the equitable sharing of the benefits arising from such

use of knowledge.

- The IJC should focus on the environmental contaminants that pose a threat to the quality of life in aboriginal communities.
- The IJC should apply a precautionary approach, as agreed to in the Rio Biodiversity Biodeclaration on Environment and Development, adopted by the United Nations Conference on Environment and Development, and include reporting on aboriginal peoples' health risk related to the environment and monitoring use of Agenda 21.
- The IJC should also recommend to the Parties that amendments be made to the Agreements to ensure that aboriginal people, from both U.S. and Canada, be involved in all levels of decisionmaking regarding the preservation and protection of the Great Lakes ecosystem, including the appointment of two Commissioners to the IJC.

I would like to thank you for listening to me tonight.

Jackie Warledo, Great Lakes Region Indigenous Environmental Network

Greeting, my name is Jackie Warledo. I was born into the Seminole Nation of Oklahoma. I am with the Greenpeace Native Lands Toxics Campaign, and presenting on behalf of Great Lakes Region Indigenous Environmental Network.

In relationship to persistent organic pollutants, I want to address the areas of social/cultural and economic impacts. It has already been established that persistent organic pollutants have been associated with cancers, tumours, reproductive and developmental deficits, learning and behavioural disorders, immune system dysfunction and many other forms of trangenerational injury. We must realize that some regions in human populations are being disproportionately impacted, in particular, human populations that have cultures based upon an interaction and interdependence of its natural surrounding environment. This includes most indigenous peoples in the Great Lakes region. Societies will have to prepare for the growing number of people who will have special needs as a result of persistent organic pollutants, contamination, due to the likelihood of learning disabilities, the education system will have to make adjustments to meet their needs. As behavioural dysfunctions increase, there will be more institutions built to house the impacted. Will there be more medical prescriptions written for the control of behaviour? As immune systems weaken, medical care and treatment of diseases and illnesses will increase. Reproductive problems, birth defects and growing numbers of cancers and tumours will decrease opportunities to maintain a quality and long-term life, especially for our future generations.

There are economic costs to address the impacts that persistent organic pollutants will have on all of our societies. We could have a sick nation with an unemployable workforce. In terms of health costs and impacts, we can be looking at higher medical and life insurance rates. The need for specialized care for disabilities and handicapped persons, the construction and maintenance of health care facilities, health care providers, medicines and home-care programs. Welfare and social-service costs will increase with education and training of teachers, rehabilitation and training programs and special job programs. The question is who addresses the impacts of persistent organic pollutants on society, culture and the economy within our indigenous communities, as well as the broader general population?

First Nations and tribes of the Great Lakes region are affected through a traditional, cultural and religious relationship to the ecosystem in which we live, including subsistence on fish, game and vegetation. This relationship is deeply integrated into religious and cultural beliefs. Any disruption to these beliefs becomes a religious intolerance that violates basic principles of human rights. **I have four recommendations:**

- The first addresses the question that was raised earlier today. Recommendation #1. The IJC should should recommend to the Parties that additional positions to the IJC be created that would be reserved for one First Nations representative from Canada and one Native American from the United States.

- Number 2. The IJC should again request that the governments of Canada and the U.S. live up to their international commitments in the Great Lakes Water Quality Agreement to virtually eliminate persistent organic pollutants and promote the use of alternatives to persistent organic pollutants that take into account the entire life-cycle of chemicals.
- The IJC and the Parties should be accountable to agreements, legislation, treaties, policies, commitments, executive order and international standards that they have already made or will enter in the future. Amendments should be made that address environmental justice issues.
- The IJC should recommend to the Parties that additional research and monitoring programs be implemented that identify and measure the extent of exposure, as well as sources of persistent organic pollutants in the Great Lakes region. These programs should involve community groups, health and environmental organizations, indigenous peoples and agencies. The results of the findings must also be distributed widely throughout the region.

Again, I ask, who addresses the impacts of persistent organic pollutants on society, culture and the economy within our indigenous communities as well as the broader general populations? Thank you.

Maxine Cole, First Nations

Good afternoon. *Saygo*. My name is Maxine Cole. I'm from the Mohawk Nation at Akwesasne, part of the Iroquois Confederacy, a mom, and a coordinator for the EAGLE project [Effects on Aboriginals in the Great Lakes Environment]. I would like to thank the Commissioners for providing the opportunity for us to speak to day. Thank you.

So the EAGLE project. Why are we different? I would like to talk about our goal, the approach that we use, the partnership approach, the various research components that we're involved in, the weight-of-evidence that has been gathered and recommendations to IJC.

What makes us different from other science that's out there? The key to the success of the EAGLE project has been its partnership approach which is underpinned by the spirit of respect and cooperation. The goal of the project has been to blend the knowledge, needs and issues of the First Nations people with western scientific methodology to further understand and document the effects of environmental contaminants on health and wellbeing. Presently our partnership includes 45 of the 63 communities in the study area, which is the drainage basin of these Great Lakes. These are active participants and together we have help pioneer a new approach to understanding effects of environmental contaminants on not only the health, but the wellbeing, the quality of life of the First Nations people.

The general approach has been to use the First Nations or tribal concept of health which goes beyond the physical health and includes mental, emotional and spiritual wellbeing also. This is the first research program in the basin of any significant scale that is gathering critical baseline data on the environmental health of First Nations, a population that has been identified as potentially at risk to exposure of environmental contaminants. Three questions have been asked of the project that we've sought and gathered evidence for: Which contaminants? The levels of those contaminants? And are there any health effects to the aboriginal population? Briefly, I will highlight some of our findings:

- The eating pattern survey was carried out to determine rates of consumption of fish and wild game for the aboriginal people within the basin. From that, we have proved that the average First Nation/Great Lakes resident's rate of consumption is on the same level as other high consumers within the basin.
- The data collected also supports and confirms that First Nations people continue traditional ways of life that include fishing for subsistence.

- The Freshwater Fish and Wild Game Program examines levels of contaminants. We cross-correlate the information that we received from the eating patterns survey to identify people at risk within the basin. As a result of identifying those people, we have developed health mechanisms and to communicate potential risk. One of the ways we have done that is to develop an innovative and dynamic software program that calculates individual and communities specific fish consumption guidelines for 34 First Nation communities within the basin.
- We have also collected blood sample for PCBs, organochlorines, heavy metals, toxaphene, and also hair samples for mercury.

Again the focus of our project has been the social/cultural impacts. In that program we have been able to assess the effects of environmental contaminants on the social/cultural wellbeing of First Nation individuals and communities. Evidence that we have gathered from three different perspectives, from three experts in their area of research, and the data have shown that urban industrial development has negatively impacted the traditional homelands of First Nations people in the basin. The result of that is that it has affected the quality of life for First Nations people. We've also found that the majority of our population is female and in the age group of 15 to 44. Therefore, there is significant concern about the transgenerational effects of contaminants.

The following recommendations are based on the weight-of-evidence, the ongoing research being conducted by the EAGLE project, and on the Agreement itself.

- The IJC should recommend that the Parties ensure a process is initiated that recognizes and affirms the inherent right of First Nations and tribal governments, and their role as legitimate parties in carrying out the goals and objectives of the GLWQA. Based on our traditional sustainable relationship with the environment, aboriginal people possess a wealth of information and knowledge which can only enhance the scientific and technical knowledge of existing research methods. The EAGLE project is evidence of that.
- Due to high consumption rates of fish, the average aboriginal person in the basin is on a level of risk that is comparable to other Great Lakes high consumers. Based on a review of current methods, both countries utilize a national average consumption rate of fish which is significantly lower than the average aboriginal consumption pattern. Therefore, the IJC should re-evaluate the water quality standards and develop fish consumption advisories based on the continuing research of the EAGLE project fish consumption guidelines.
- The IJC should include qualitative methods developed by First Nations tribes to measure the social/cultural impacts of environmental contaminants on their homelands.
- The IJC should integrate the weight-of-evidence being gathered in the EAGLE project's social/cultural program into the Commission's monitoring of human activity in the basin.
- The IJC should examine and document the impairment of beneficial use to the First Nations and tribal ecosystems and designate First Nations tribes as populations of concern.
- The IJC should also undertake an evaluation of the environmental health status of First Nations and tribes and recommend to the Parties that homelands of the aboriginal peoples in the Great Lakes ecosystem be designated as additional Areas of Concern.
- The IJC should institute multi-partnerships at all levels with First Nations and tribal governments in the Great Lakes basin from the technical to the political. The Commission should establish a special advisory and/or technical group to deal with First Nations and tribes ecosystems in the basin.
- Based on the existing boundaries, jurisdictions and forms of governments of First Nations and tribes, there are more than two Parties sharing these water of the Great Lakes, therefore, the IJC should insist that Parties recognize the inherent aboriginal rights and treaty rights of First Nations and tribes. There should be THREE Parties to this Agreement, through one of the following procedures: (1) the IJC should designate two of the existing Commissioners' positions for First Nations tribes, one from Canada, one from the U.S., or (2) the IJC should recommend to the

> Parties that two additional Commissioners positions be created and that they be filled by appointment from First Nations in Canada, and tribes in the U.S.

The scope of these recommendations should be implemented through genuine spirit of friendship and cooperation in protecting and preserving the Great Lakes ecosystem, because that's why we are all here today. *Neow*. Thank you for listening. *Scanow.*

Tom Goto, National Coordinator, Indigenous Environmental Network

Greetings. *Mawoopada,* Great Lakes United, also *Woopada* to the EAGLE project and this presentation by all of us as well as myself is to the Commissioners that you can convey our voices, our words and our prayers here to the appropriate people that represent the United States and Canada. My name is Tom Goto. I am National Coordinator for the Indigenous Environmental Network. We also are affiliated with the Great Lakes Regional Indigenous Environmental Network. I reside in Minnesota. I am a member of the Obidowaka Dakota Optiye band of eastern Dakota in Minnesota as well as my mom being Navajo from the southwest.

Today I want to put up this symbol here. You can even include New York state on there as well. That provides an example of the differences that we have between our cultures and our populations. We have two sets of laws here. We have the *wampum* which is the relatives of the longhouse, and underneath there, we have the New York state department, but that symbolizes the other laws that we go by and there is a big difference here.

My presentation is going to be on the biodiversity issue. Native peoples of the Great Lakes region, we are of the water, and the water is of us. It is through this great land that our lifewaves are connected to the spirits of the Great Lakes. We are of the earth, and it is through the water and the earth and the sacred breath of air that makes us able to share the guidance of the sacred fire that enlightens our mind and warms our heart.

This is our circle of life, our biological diversity. It is from this great circle that we are all related and connected to one another. We need each other for survival. This is what modern people call biological diversity. From this circle of life, many of our families are related and related to clans such as through the bear clan, turtle, kingfisher and many others. We have that relationship to the animals and the habitat. As native people of this North America, we understand the concept of the word biodiversity and many of our tribal traditional societies have certain laws given to us by the Creator and sacred spirit that we must follow and are not in the position to break or to negotiate. These certain laws have been passed down from generation to generation and have allowed us to maintain sustainable communities and a harmonious way of life on our earth mother for thousands of years.

The biodiversity of the Great Lakes is strong in cultural and spiritual significance. There's a couple of factors I need to mention. There are special places in the waters and lands that have historical significance to native peoples that can be part of our creation stories. It is part of our genesis. It could be where spiritual beings, significant to our culture, once lived or where they took part in historical moments in time. It could be a place of sacredness where spiritual pilgrimages, where fasting and prayer took place. It could be a place in our aura history that we value in certain ways that are significant to our people that is not valued or understood by the non-native people. These cultural and spiritual concerns are very sensitive resources that are highly valued to our communities. It has been a challenge for over 500 years for the non-native person, their historians, their scientists, their religious and political leaders, to understand and to value and respect those things we hold sacred.

In the areas of risk assessment, we know that risk assessment and risk management is one of the activities that determine environmental policy. And we are very concerned that in the application of use and risk assessment that there is no consultation or reaching out or inclusion of those certain values that are dear to us. It is quite interesting that there's a challenge of how you even begin to quantify those things that are very spiritual in nature to our people. The Creator made this land with certain features and characteristics throughout the many cycles of life and through the continual natural changes of earth mother. The ecological systems were created that support our biodiversity. I am not going to go into some of the issues. A lot of the issues were talked about as far as the impacts, toxic, the whole nuclear fuel chain, those comments have been made in other testimonies. Definitely there is a whole chain of contaminants and pollutants that are impacting our people in the Great Lakes basin. However, I need to mention that when it comes to these developments, there's ecological impacts, we know that there's evidence here that there's toxic impacts, radioactive impacts and when it comes to environmental assessments and environmental impact statements, there aren't any consideration of certain cultural and spiritual values in those assessments and that definitely needs to be done.

The United States has recognized that a disproportionate siting of polluting industries within people of colour and native communities and territories, and developing federal environmental justice policies to address this issue. In our communities a lot of us are just beginning to develop those infrastructures to find and prioritize and address these environmental issues. This is something that the Commission should be very aware of. Another area, biodiversity I'll need t mention, is the area of protection of native ecological knowledge, our traditional knowledge and intellectual property rights. Those were mentioned by one of our other associates here. I won't repeat that, but we are concerned that both federal agencies often fail to regulate whole classes of genetically engineered creatures that could negatively impact the Great Lakes biodiversity.

We do have recommendations. I recommend that the IJC develop an action plan with timelines with the following items:

- an action plan that would create two additional Commission positions that would be reserved for one First Nations representative from Canada, and one Native American representative from United States. This action plan will provide a policy for the process of selection, appointment and maintenance of the positions. This would be consistent with federal mandates of Canada and U.S. to institute collaborative and consultative processes between the two governments, their agencies, and tribal governments and First Nations band councils. This would ensure native participation in the implementation of Great Lakes Water Quality Agreement. U.S. tribal governments in the Great Lakes basin are implementing tribal water quality standards and have legal standing on developments in water quality impact activities outside the tribal reservation boundaries. This emerging authority of tribes in water quality standards within state jurisdictions further justifies the need for native representation on the Commission.
- Development and implementation of First Nations tribal task force, within IJC, to collect data, evaluate and make recommendation to the Commission concerning native environmental justice issues, impacted native populations in the Great Lakes basin. Impact areas will include not just rural reserves and reservation areas, but also urban areas with significant native populations, as determined by the task force.

We have further recommendations, but I won't go into that. That's included in the publication you have in hand. But we also want to make sure that it's diversity on there, of traditional leaders and our native people involved with these issues as well as the band councils and tribal council representatives. We do want to request that the development and implementation of a process within the Biennial reporting mechanism, whereby the Commission shall provide an assessment of its development activities and implementation of a native and environmental justice initiative.

Within the interests of protection of the biodiversity of the Great Lakes, the Commission will develop a resolution with recommendations to the Governments of Canada and U.S. to develop biological safety protocols concerning biological experimentation, genetic technology, biological prospecting and the release and transfer of genetically-engineered organisms. Recognition of the collective rights of Native peoples to intellectual property rights and traditional knowledge shall be included as well as benefit-sharing protocols and policies with Native Americans. Consistent with implementation of the GLWQA, international standards are being developed within the United Nations member states and as such as the Convention for Biological Diversity, the Convention on Sustainable Development, Agenda 21, we request that these international instruments be ratified by Canada and U.S. governments and it would provide further support in the implementation of the goals of the GLWQA.

The Commission through its joint relationship between the governments of Canada and the U.S. must develop policies that would recognize and be consistent with the executive order that United States has on environmental justice which is Executive Order 12898, dated February 11, 1994. This order focuses federal attention on environmental and human health conditions of minority communities and low-income communities and calls on agencies to make achieving environmental justice part of their mission. The order requires federal agencies to develop strategies to help bring justice to all citizens who are disproportionately affected by pollution.

At this time, I don't see that IJC has any policy on addressing environmental justice issues, definitely in all decisions that they do make, I would strongly suggest that you consider developing an environmental justice policy because as you look in the audience, there are other populations, people of colour, African American, Mexican American, Asian and we need more of our native people at this table in order assure that environmental justice is being recognized and that all people have equal opportunities to be part of your decisionmaking process. Thank you.

Eric Johnson, Assembly of First Nations

Good afternoon, my name is Eric Johnson. I am with the Assembly of First Nations. My formal training is probably more of being a fisherman from a community on Lake Huron basin.

Aboriginal people have had probably the longest standing conflict over landuse and environmental health. I think a lot of this prevents local people from viewing us as a decent cultured people who could champion the causes of public good. This leaves us to talk about the fundamentals of our relationship with each other. The point I am trying to arrive at is that the IJC mandate does not necessarily have to be limited to the Boundary Waters Treaty of 1909 and the more recent additions to the GLWQA. Aboriginal treaties bring a separate but fundamental and constitutionally recognized personalities to environmental concerns. Aboriginal treaties encircle the Great Lakes systems which strategically places these rights in the centre of freshwater concerns and increases their value in advancing freshwater protection, plus strengthen federal presence in environmental issue as possible through the bilateral relationships and obligations that such treaties have established with aboriginal people. Still aboriginal knowledge have the potential to make significant contributions to future legislation and policy.

The IJC, in addressing freshwater concerns, requires a broad constitutional basis in addition to enabling legal framework that can implement treaty wide and local community environmental protections. If the IJC is to address the magnitude of the environmental damage that is eminent from increased development, it cannot afford to be reduced to managers of crises created by government agencies who are committed to private stakeholder and economic resource partnerships. A significant concern exists with the public representation and democracy in Ontario and the federal government's current approach to private stakeholder management. Ironically, it is the business interests, the private interests that governments have used as the criteria to identify potential partners in management. A shrinking provincial management system questions the ability of Ontario's management agency to represent a collective of interests and actions on question of public health and sustainable resource issues. This conflicts with a larger purpose associated with the IJC.

Leadership in freshwater issues require the ability to negotiate the future compromises needed to implement freshwater protections and the courage to act on behalf of the environmentally disadvantaged. A federation of private interests will lack any incentive as decisionmakers if the only benefit is to be environmental health. Basically, aboriginal people and local communities are forced to surrender the health of future generations if public resources are to be managed under the private sector. The IJC must examine public stakeholders within this brand of corporate management. The IJC should give meaningful participation to aboriginal treaty governments in addition to local community involvement as described under our Article 8J of the Convention on Biological Diversity. In this instance, the Convention's Article provides the fundamental distinguishment required to see the private/public conflict of self interest and public good. Aboriginal people and local communities must be viewed as future managers as opposed to local consumers. Aboriginal people and local communities must be allowed the opportunity to be the public-minded decisionmakers for local environment. The IJC must examine the no-net-loss policy principle as it has no basis within the Canadian Constitution, nor does it provide a basis to reconcile the additional costs of restoring habitat and those costs linked to the health care that are a result of a contaminated environment and big business. This principle with no reference to biodiversity or ecosystem-based management is in reality a corporate model to minimize environmental costs associated to private enterprise. In addition, the IJC must be conscious of the environmental threats represented by the powerful international corporate alliances who have consolidated these interests under the world trade organization. This international organization now seeks on behalf of its membership key concessions as freedom from government regulation through multi-lateral trade agreements. Finally, the federal and provincial governments have diminished protective legislation that was available to local communities and environments. The IJC must acknowledge that this abandonment of responsibilities by crown governments does not diminish the responsibility of aboriginal government to their treaties and the people who inhabit their territories.

The key recommendation that I would have for the IJC is, of course, to consolidate the federal obligation that are available under treaties, in addition to Article 8J and how it describes the participation of local communities in the protection and management of biodiversity ecosystems.

The last comment I would make and recommendation would be that the IJC acknowledge the role that aboriginal fishing communities can offer and monitoring freshwater contamination. This monitoring includes the stocking of exotics and their impacts on biodiversity of natural fish stocks. The IJC must commit to disallowing of such private interests and partnership to define conservation for Canada, Ontario and the local communities that will be impacted by private sector interests and objectives. Thank you.

Walt Bresette, Lake Superior Chippewa

There is an international conspiracy afoot. I had prepared a presentation. I am a visiting professor at Michigan Technological University, and United Airlines picked me up and missed their connecting flight in Chicago, and Air Canada brought me the rest of the way up and lost my luggage, so my presentation is missing! So I have to create as I go along here. I bring some tobacco which I found in my bag as a gift that we must always give.

Who has ever heard of Rodney King? Ever hear of him? He's this guy over in the U.S. Two things of significance, I bring: one is his comments after the fact is that we must all work together. But why did he he say that was evident in the video tape. And I am here to suggest that the video tape is before us. The evidence is here. I don't even think the jury is out, I think they are being held hostage. I don't think there is anything new I could say or bring. I don't think there's any profounder research that would augment anything more to suggest that we are under assault. Perhaps **bodies** is what we need, which will finally move people to action. The body count is indeed growing.

I am going to make up my presentation. I am going to talk about sovereignty and since my bag is missing, I have to create as I go along.

This is sovereignty. Everyone had it. They had a 50-dollar bill and they had four twenties at creation. Yeh, you had it too. Over the course of time, we lost some of our sovereignty, or gave it up, or consolidated it, or we codified it in various forms whether it was the Bible or whether it was the Magna Carta or the British North American Act, or the U.S. Constitution, or the Patriation Initiative in the 80s in Canada. In various ways that sovereignty given by the Creator has been eroded or we by choice, have given up. We've changed our method of communications.

I am here to suggest to the IJC and to others that the remaining sovereignty which exist with native people, particularly as it applies to the sacred waters, where I come from, of Lake Superior and where Eric comes from on Lake Huron and Georgian Bay, is not for you to decide what's to be done about it, it's up to the Creator in that compact and relationship and that agreement and that treaty between us, given to us as aboriginal as indigenous that the *sovereignty* and the protection of that comes from the Creator and from the Creation. And this last $20 bill represents that long history of sovereignty. And it's up to you to take the last $20 as representatives of the nation states of the United States and Canada, and the subunits thereof, of the province of Ontario, states of Michigan, Wisconsin, Minnesota and others. It's up to you to take that last piece of sovereignty. It's not for you to give to us. I don't come here asking permission to speak. The Creator gave me permission to speak. I come here to let you know that that's what's going on now. When Tom Gotu talks about environmental justice, the flip side of that is environmental racism. That's really what we are talking about and the policies which are not being implemented, codified in all those agreements that you have signed from the IJC to your Constitution says that you **must;** you have a fiduciary responsibility. You have a legal obligation to look out for the interests, a legal property trust responsibility to look out for the interest of those you've captured -- meaning indigenous people. It's a legal duty, it's not something that because you're nice people, you must do it. It's a legal obligation.

Now, you've heard of Rodney King, have you heard of Chief Joseph? What did he say? "We will fight no more forever." But he didn't say that he wasn't going to *sue*. It's that legal standing that Eric talks about that will enable us to eventually come to the place and hopefully, you will come to that place as well -- where we can come together. It becomes tiring being the conscience of the nation's states. We must do it, of course. Eventually, we will come to that place because there's no other choice. The evidence is here. How many more studies do we need on mercury? How many? It's here! We have the video tapes! So, we will continue to be your conscience because in doing so, we defend *our* sovereignty.

What we need is for you to become our scientists. We need that symbiotic relationship. We need you to once more become our regulators, if that is the role that you continue to choose to elect. But the question is why can't you do that. It has to do with what that other guy said, Bill Clinton, when he said that ". . . it is the economy, stupid!" So, our scientists and our resource managers cannot do their job, or they are being ignored because of political reasons and the reason they are being ignored for political reasons is because the multi-national cartel which is surrounding the Great Lakes and engaged in the body count against indigenous populations and violation of international and national law, is being allowed to go on. There's been a bloodless coup amongst our governments, and native people are dying as a result of it.

I am here before the IJC to say if you need help, if you need bodyguards, if you need someone to mouth off, if you need somebody to point out to your leaders what your scientists and resource managers are telling you and the rest of the world, we can do that for you. We would be willing to do that, but we need to do that together. We need to come to the place where the multi-national cartel which has no national interests but only bottom-line interest needs to be put back in its place so that the citizens, indigenous and otherwise can once more be protected under those codified agreements and constitutions. That's the problem. There has been a dismantling of that balance.

In Ontario this past week, we witnessed the teacher's saying 'no more.' That's not an anomaly. Unless you act, your resource managers and your scientists are going to be the same place where the teachers are. They are going to be finally in the same place where native people have been all this time. That's the coming together that's going to occur on the streets, in the bush, on the lakeshore. I'd prefer it happened in a diplomatic setting, but in order for that to happen, the diplomats need to take action. Native people are, and will, and will continue, and more of your people will join us in that process. We would prefer doing it here and we await the action that you need now to take in order to resolve these issues. *Neeg wich!* [aboriginal thank you ?]

INTERNATIONAL JOINT COMMISSION GREAT LAKES WATER QUALITY AGREEMENT PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

HIGHLIGHTS OF IJC RECOMMENDATIONS TO GOVERNMENTS

L.H. Legault, Chairman, Canadian Section

Ladies and gentlemen, if we could come to order please. Just before we proceed to the open night presentations, there are two matters we would like to review with you. First of all, we want to take this opportunity to welcome and introduce to you, the new Director of our Windsor Office, Tom Behlen. Tom, would you stand up?

Many of you will recognize Tom's name and his person. He comes to us from the Ohio EPA where he served as Chief of their division of Surface Water and represented the Director of the IJC's Water Quality Board for the last few years. Tom brings with him, both academic degrees and past work experience as a biologist, chemist, and environmental lawyer, which is an interesting combination and fits very nicely for the work he will be doing in Windsor. Please join me in welcoming Tom and wishing him well.

Of course, with this new appointment to the position of Director of the Regional Office, it means that we are losing something. As you know we are losing Doug McTavish who has served the Commission in many capacities for many years, but most particularly almost five years, as Director of the Regional Office. We owe him a great deal. He has served the Commission well. He has unfailingly showed the greatest dedication to the objectives of the Water Quality Agreement, and I wish you would indicate your appreciation by a hardy round of applause.

The second matter I would like to take up at this time relates to the charge that was put to the Commission by the governments of Canada and United States, a little over six months ago. I think all of you know that at that time, the governments had requested the Commission to review its mandate and to come forward with proposals as to how the Commission might best assist the Parties of the U.S. and Canada to meet the environmental challenges of the 21st Century. We consulted very widely in preparing our response to this charge. We consulted, of course, with our own family of Boards, Council, task forces, and with university professors, scientists, experts of nongovernmental organizations, provincial governments, state governments. On the basis of this very far-ranging and comprehensive series of consultations, we have come up with a report which we submitted to the Canadian and U.S. governments last week, which will be made public tomorrow. Summaries of the report are here and available for distribution.

I would like to take just a few minutes to hit some of the highlights of the recommendations we are making to governments. There are five proposals. These proposals really go to adapting and extending the Commission's structures to further assist the Canadian and U.S. governments in meeting the transboundary environmental challenges of the 21st Century. The thrust of the proposals is to reinforce the Commission's traditional capacity to assist the two governments:

- first, by alerting them to emerging issues;
- secondly, by providing a more effective means of addressing environmental issues and

anticipating, avoiding and resolving transboundary disputes;

- thirdly, by encouraging and facilitating binational efforts to find solutions that are in the common interest of both countries and their people, and
- above all, by engaging local interests in local governments in all of the activities that I have just mentioned.
- The key proposal, the central proposal that we have put forward relates to establishment of a system of international watershed boards that we would establish over a period of years to extend, so-to-speak, the environmental reach of the Commission coast-to-coast. The new boards would focus on the overall environmental integrity of each watershed. Water, including groundwater, land and air, and the Boards would monitor and report on all relevant concerns, including questions of habitat, biodiversity, exotic species and pollution from all sources.

For the Great Lakes basin, the existing Water Quality Board would provide the nucleus for the establishment of an international Great Lakes International Watershed Board covering the St. Lawrence right down to Trois Rivieres. Other Great Lakes boards and task forces, and all IJC Control Boards would continue in their normal role. This focus would allow the International Watershed Board to identify and address new issues before they develop into environmental crisis or transboundary conflicts. conflicts. It would also enable the Boards to serve an ombudsman-like role in drawing international attention to local concerns about the environmental integrity of the watersheds.

Commissioner Chamberlin will take us through the remaining four proposals that we have put before governments.

Alice Chamberlin, U.S. Commissioner, IJC

I am going to be very brief in the interest of time. I will begin by saying that the additional proposals were designed to enhance and assist the work of the proposed International Watershed Boards across the boundary. They were also designed, in part, to address the issues that we heard through the consultation process that are the greatest demand, not only of greatest concern, not only in the Great Lakes basin, but across the boundary.

- The first proposal is a series of studies that would be initiated by the Commission; a study on water supply and demand, as well as water quality in the international watersheds across the boundary area. Of course, that has significant implications for the Great Lakes region as well.
- A study of our transboundary air issues that would identify for the Commission, emerging air issues, and finally a study of the core data requirements, the monitoring capacity of the Parties to provide that data on the critical issues of air and water in our transboundary region.
- The third proposal is that the Commission continue its review of the existing Orders of Approval that operate structures such as dams across our boundary area. We have 20 structures in six watersheds currently. In some places, we don't believe that those Orders of Approval are compatible with the existing conditions within that watershed. So we propose to continue our review to make sure that our Orders of Approval are compatible with what we know now about the interests in the watershed, as well as environmental conditions in those watersheds.
- The fourth proposal is a request to governments to give the IJC a Reference on certain nuclear issues. This question has been brought up at this Public Forum and past Biennial Meetings and we know it is a very sensitive and timely binational issue that we hope governments will consider giving the Commission a Reference to address and begin a comprehensive binational dialogue on critical nuclear issues in the basin.
- The fifth proposal is that the Commission report on an ongoing basis to governments on transboundary environmental conditions. We believe that the proposed watershed boards, the International Watershed Board, would be critical to reporting to governments, the nature of conditions in the watershed boards, and the emerging conditions that government should be

> alerted to. We see this as utilizing the local and regional capacity that are really the experts in the international watersheds to help direct the future work of the governments.

Finally, I would like to say that all of these proposals will, we hope, move forward, but most importantly, in consultation with the existing bilateral organizations in our international watershed boards, in consultation with the states and provinces, and other relevant authorities in the international watersheds. We are looking very much forward to that consultation process. We are depending on it. The support for this concept has to come from the need and from the citizens and public in our international watersheds. So we are anxious to begin that dialogue with all of you and look forward to it. Thank you very much.

Susan Bayh, U.S. Commissioner, IJC

Thank you, Alice. What I really like about the charge presentation is that a lot of the comments that we heard yesterday in open-microphone were already incorporated into some of the things we have presented and that's a wonderful way to show that we have been responsive on nuclear issues, and other issues to make sure that those are incorporated in our plans for what the IJC will move into in the 21st Century. The second part of it is, that when you read the document, our rededication and our continued dedication to the Great Lakes is in no-way lessened by our dedication to take the knowledge, take the expertise that we have learned in the Great Lakes and apply it on the transboundary.

Now, we are going to take this opportunity to have you speak to us. I have to start out with an apology, but an apology of success. We have so many people that are still waiting to speak, that we are going to be fairly strict about our time deadlines to make sure that *everybody* has an opportunity to speak. There has been such a demand to speak that we must limit comments to three minutes apiece.

I will now turn it over to Jim Chandler and his colleague, Murray Clamen, Tom Behlen to start the open-microphone process.

INTERNATIONAL JOINT COMMISSION GREAT LAKES WATER QUALITY AGREEMENT PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

PUBLIC MEETING -- PART 3

Jim Chandler, U.S. Secretary, IJC

Thank you Commissioner Bayh. As we did yesterday, we are going to announce four speakers at a time. This will allow everyone an opportunity to get up to the microphones and as the Commissioner said, there are lots of people who want to speak, many wanted to speak yesterday. We will hold up a sign when there is one minute left and hopefully we won't have to put up the second when there's no time left. First, will be Dan Emerton, followed by Ken Bondy, Ziggy Kleinau and Susanne Schulte.

Dan Emerton, United Autoworkers

My name is Dan Emerton and I am here representing the United Autoworkers. I appreciate the opportunity to speak. I hope my message will provide you with some useful information, facts that call all of us to recommit to environmental priorities. I hope that more American and Canadian companies will discover how proactive environmental positions can help companies stay competitive while still ensuring reasonable profits. When labour and management work together to go beyond compliance with environmental regulations, they experience improved employee morale, higher productivity, less days of work lost, lower turnover rates and lower workman compensation claims. Additionally, these responsible environmental positions help protect companies against expensive lawsuits over unhealthy or dangerous conditions in plants. Proactive corporate environmentalism isn't just good public relations, it can be proven that it is good business.

Integrating positive proactive environmental thinking into the corporate process can produce new opportunities for companies and labour. Beyond that, it is essential for survival. Companies that have vision incorporate the right environmental values into their planning process will carve out a greater market share. The companies that do not change their way of thinking about environmental compliance will not be in business longterm.

With that said, I would like to talk about a growing trend that concerns me, not necessarily for myself but for the impact this issue will have on our community, our children and the future of both our countries. The issue I am speaking of is **job blackmail**. Corporations have learned very well how to threaten the livelihood of millions of workers by implying that the cost of doing business in certain areas prohibits them from committing to these areas longterm. Whether the costs are EPA environmental regulations or health care costs is really irrelevant. There will always be some place cheaper in the short term to relocate business. The question is at what cost? Underdeveloped countries may have lower labour costs but the health of these workers are just as important as any other. Companies can relocate to areas with less regulation. More and more people than ever before understand the value of protecting our government and the people in it. Be sure of one thing, wherever corporations relocate, advocates for environmental justice will follow.

The problem seems to be that many companies seem to see environmental regulation as hostile demands made from industry outsiders. Environmental controls and increasing public awareness are here to stay.

Companies that are able to adapt to this task are far more likely to meet the challenges of doing business in the 21st Century.

In summary, it is time to end the battle over the environment by government, industry and labour, and adopt a position that collectively can achieve a better environment for this planet. Not because we have to, but it is the right thing to do. Thank you.

Ken Bondy, Canadian Autoworkers, Windsor

Good afternoon, my name is Ken Bondy. I am the chairperson of Canadian Autoworkers, Windsor Regional Environment Council representing approximately 35,000 autoworkers that live in and around the Lake Erie/Detroit River and Lake St. Clair area. I am here today to, first of all, to say thank the Commissioners on behalf of all of the Canadian Autoworkers from coast to coast for allowing labour's voice at these proceedings.

Yesterday and earlier this morning, I heard facts and figures that describe the positive gains that have been made on environmental remediation. But still, that is not enough. There are still a large contingent of government and industrial representatives that *just don't get it.* When are these people going to realize that our environment is the determinant of our health??!! Government and industry have the means to increase the gains that we heard these last few days by two, three or four fold. But there are those that continue to hide their heads in the sand or even worse, outright lie about their commitment to the environment and consequently, to our health.

Let me give you a couple of examples of this ostrich phenomena. On December 16th, 1996, the Canadian Autoworkers across Ontario representing 143,000 people lost a campaign entitled "Environmental Deregulation is a Recipe for Cancer." We have facts and literally thousands of letters to the Ontario Environment Minister, but unfortunately, he is not listening. As we stand and watch over 80 regulations being put up for review with the thought that regulations inhibit business. Seven-hundred and twenty-five Ontario Environment Minister's staff have been laid off. I sat in on a meeting on Friday and heard an industrial representative deny the facts that the persistent toxic substances in our environment are not having a detrimental or negative effect on our health. *Who* are they trying to kid?

Today in Canada, one in every three Canadians will have some form of Cancer to fight in their lifetime. One in five will die. We cannot continue to buy the logic that this is all due to hereditary or lifestyle conditions. We know that pollution causes cancer. What we need is a recommitment from government and industry on our environment and our health.

I will conclude by speaking of **two recommendations** for the Commissioners:

- one, that you work toward the adoption of a just transition process to bring these stakeholders together; and
- two, that we look into the accumulative effects of all of these chemicals as they have on our health and environment.

I have a document here that I will leave on your table that will explain this further. Thank you.

Ziggy Kleinau, citizen and member of Great Lakes United

Thank you. My name is Ziggy Kleinau. I am a new member on the Board of Great Lakes United, and also represent citizens for renewable energy.

Radionuclides, a persistent toxic substance in the Great Lakes. There was quite a discovery about four years ago and it was long overdue. I was deeply humbled by the presentation of the young people that pled for their sustainable future. What a legacy we have left them. Really, we never pay off the debts in our generation. That's the creeping radiation that causes genetical effects over centuries.

The Nuclear Task Force of the IJC is assessing the sources. The undisputed, largest source comes from nuclear reactors. Tritium in biota in fish and drinking water; I found it very upsetting that in the Priorities document for the next two year, the nuclear effort is listed as No. 7; that's a lower part of the medium priority. It has to be shifted up to a high priority.

Virtual elimination is only possible if the nuclear plants are phased out at a much accelerated pace. If you say where's the electricity going to come from? We have conservation and renewable options which are ready to replace the energy lost in a very short time.

I want to give you a little example. Wind power, for instance, they have 28,000 megawatts in Canada as a possible replacement. We have fuel energy efficiency of 10,000 megawatts; it's just unbelievable what kind of natural resources we have in the renewables. There have been enough assessments, monitoring after 25 years in the Great Lakes. The honeymoon is over. We need action now. We want clean water now.

Susanne Schulte, student

Hello, my name is Susanne Schulte. I am a concerned student from Riviere High School in Ohio. I would like to talk about some aspects from history that I am sure we have all known and heard before but I believe we need to remember now.

In the 1960s and 1970s, Lake Erie was considered dead and the Cuyahoga River caught fire almost every summer. Decaying fish, raw sewage and beach closings were the norm, but the government and the people didn't say anything. In 1962, Rachel Carson wrote "Silent Spring." In it, she warned that chlorinated pesticides could pollute human tissues, but she was called hysterical and over-emotional because of this. The government didn't listen and the chemical industry expanded the use of pesticides. In 1964, Carson died of breast cancer. In 1984, the first stated confirming the connection between pollution and human injury was given to us through Dr. Sander and Joseph Jacobson at Wayne State University. They conducted an experiment which included a control group of expectant mothers who ate no fish and an experimental group of expectant mothers who ate Lake Michigan fish regularly. The results showed that the experimental group's children were born earlier and smaller and as they matured, showed impaired neurological development.

In 1991, research done on 14 species from the Great Lakes region all showed population declines, as well as reproductive and hormonal disorders. These disorders showed up in the offspring, not the adult and are believed to have stemmed from pollution buildup in the foodchain. Research has concluded that a growing body of evidence suggested that exposure to synthetic chemicals in the environment cause endocrine disruption, rising rates of breast cancer and endometriosis, increased reproductive problem in males and females, and compromised immune systems.

In 1995, Radiation and Breast Cancer, the High Cost of Living Near Reactors gave us the hypothesis that stated that emissions from nuclear reactors directly contribute to the increase in breast cancer cases. Two other factors were introduced to us in 1995, the first was a proposal to use weapon-grade plutonium in commercial reactors which could potentially spread deadly contamination throughout the Great Lakes. The other was research showing increased deterioration of Ontario's hydro units on Lake Huron and Lake Ontario which could spill very large quantities of tritium-laced water.

In closing, all of this evidence points to one thing, the fact that the pollution from the past and current generations are causing serious health matters now. The governments of Canada and the U.S. have come a long way in the journey for pollution control, but we are far from arriving at our destination. That destination being "zero discharge." We have all seen the report cards on the governments and even the Great Lakes Water Quality Agreement, itself. The fact is the governments aren't doing their homework and therefore are failing to meet the objectives.

Sometimes I sit and think about sending the government back to school so they can all learn how to listen once again. Not political listening where they forget five minutes later, but actual listening and comprehension so they can finally hear what we have been yelling at them over the years. Protect our Great Lakes. Protect our health and protect our future.

Nicole Marsh, student

Hello, I am Nicky Marsh. I come from a place where our river, the Cuyahoga River burned. Today, it no longer catches fire and 25 miles of it are classified as a scenic waterway. We no longer believe that the solution to pollution is dilution. If such progress can be made on a river that burned, we can certainly reach the goal of zero discharge on the Great Lakes.

Nearly 75% of the earth is covered by water. Three percent of that water is fresh water and only 1% of that water is available to us for drinking. Water, water everywhere, not a drop to drink! The Fifth Biennial International Joint Commission meeting called for the governments to produce a binational program that would decrease the use of chemicals found in the Great Lakes environment. The governments agreed with the Commission's positions that persistent toxins hurt wildlife and fish, and may cause injury to mothers and their babies after consumption of fish from Lake Michigan, and that persistent toxins are a threat to human health, wildlife, aquatic health and the entire ecosystem.

Amendments made to the GLWQA state that the goals of the Agreement should be to protect human health, and conservation and protection of the living aquatic resources and to further ensure ecosystem protection. After all of these goals and positions taken by the governments and the IJC are put out by the IJC says [*sic]* ". . . the levels of persistent toxins in fish are still at unacceptable levels." I don't want to tell my children how great the Great Lakes *were*, I want to show them. I want them to be able to swim in the rivers and lake, and eat the fish.

With the remaining persistent toxins the Great Lakes bloodstream and talks of regulations being pushed back, allowing for more of these toxins to go in, I don't see that happening. I am willing to work hard for the future, but the question is, are the governments?

I look out into the audience now and I don't see any of the government officials who gave such powerful speeches about listening to the citizens yesterday. Well, the public, the citizens, the future is talking now. And where are the governments? We listened to you. How and why aren't you here now?

I'll close by quoting the preamble that said what " . . . our generation has failed to realize is that what we are doing to the Great Lakes, we are doing to ourselves and our future." Thank you very much.

Judy Pratt-Shelley, Tribal member and representative of Lake Superior Ojibway

Hi, thanks for hearing me. You might have to cut me off at three minutes. I might not notice your sign.

This is my daughter Eva. I got to talk to Alice in Duluth when I was carrying Eva about my concern about toxins. I got to see Susan in the hall. She has two, two-year olds also. This is all about children and our future.

For me, as a resource manager with a background in biophysical environmental studies, I understand these toxic issues. However, that doesn't help me change things. All that does is inflict fear in me, in my life. I nursed my son four years ago, and I am nursing my daughter right now. There are toxins in my breast milk and I know that. However, I will not stop breastfeeding my children. There's are also other good things in my breast milk.

I am also well aware of the fish advisories. I live in the Lake Superior basin, right on Lake Superior. As a tribal member and a representative of Lake Superior Ojibway, we have rights retained and treaties signed with the U.S. Government where we retain rights to hunt, fish and gather in a user-fiduciary of the resources that we had before the United States and Canada were here. In exercising my rights, I don't want to be giving toxins to my children through the consumption of the food that I have every right to eat, three meals a day, every day of the week, if I want to. However, I am limited in the number of fish I can eat, the size and species of fish. I will not stop eating fish. What needs to be done is not to advise me on what I should not eat, but rather get rid of the toxins in the environment so I can meaningfully exercise my rights that were guaranteed in treaties signed by the United States government.

We preceded any of the states around Lake Superior and these governments are failing terribly on the binational program. It has taken us five years of fighting to even get representation on the Lake Superior Task Force and Lake Superior Workgroup. When I emotionally said how I felt about toxins in my foodchain, that I am passing on to my baby, Chuck Ladine, the chairman of the Lake Superior Workgroup said that I was not *unique*. Well I *am* unique but I am not going to waste my breath telling him that I am unique, because he can't hear me. And, he's not here anymore at the IJC meetings to even listen. We fought to get there and now we're there. Now, we need someone to listen. This is the reason why things don't change, because they are trying to keep things the same so bad.

Recommendations real quick, I've seen the one-minute sign. Get Haudenosaunee people on the IJC or I suggest the binational joint commission. Look to other countries, we were wonderfully welcomed in Sweden by the Green Party. Now they are having to deal with toxic issues that are really from the birth of many here in the European countries. Take a look at the Baltic Sea. They have pollutants all over because we value money more than resources and people. It's going to kill all of us. Money we can't eat and it's not going to build us a very big fire when we need it to protect us, it will fail us miserably. Confederate money is worthless. We cannot only rely on money. When I manage resources for our tribe, I need to look seven generations in the future and I see the 'zero' sign.

Seven generations ago, the contaminants that your forefathers put into Lake Superior are just getting into into Lake Michigan. When will it reach Niagara Falls? Way more than seven generations. Let's start looking at resource management in a timespan of at least seven generations -- 200 years.

The last message I will give you is from my chairperson. Please, please, please start looking at local issues. Local issues today are the big issues basinwide tomorrow. In Lake Superior, they are salvaging lumber that sunk 150 years ago and it may be a local issue in the Shawanigan Bay now, but it's going to spread. What they are doing is beyond taking away the value and the habitat for the fish, they are removing the biological reinvestment that's the very bottom of the foodchain for the future. Please look at local issues. Look at those little red dots all over that map, because that's where the issues that are local that are killing the Great Lakes basin.

Please, if you can't do it for me, do it for my beautiful daughter, Eva. Her name, because I am a Lake Superior Ojibwa on my mother's side and French-Canadian on my father's side whose family immigrated from Sweden and Germany. My babies name, Eva is named after my grandmother and she is the giver of life. When she nurses her baby, please, less toxins, because we can't stop doing these things or we lose our way of life, and we won't do that. Thank you for hearing me.

Elaine Marsh, citizen, Ohio

Hello, I am Elaine Marsh and I will be brief. My chief concern, in addition to all of those stated over the last two days, is that we be here in two years and that we be expanded and that some of those people that we are supposed to partnering with in order to implement these stakeholder operations which many of us are involved in, that they be here as well. I deeply hope that will happen.

I also hope that when we come back in two years, your recommendation involving economics will be fully implemented. I served on the Ohio EPA external advisory committee for the implementation of the Great Lakes Initiative. And, we were told that for the first time ever, we were going to have a cost-benefit analysis that in fact, included benefits. So we had a cost-side analysis, the old cost-efficiency, you know that huge formula that takes about 256 megs of RAM in order to implement, and looks at the costs of everything, including the effects on the cost of paperclips in Bangladesh. What we got on the benefit side were about six pages of words. We asked whether there were any cost savings in cancer effects? Well, yes, but there are no protocol to calculate that. We have no way of translating the number of cancers. So I really hope that you would look at that seriously because the protocol, although they do exist in various places, are not acceptable. We need someone with the stature of the IJC to utilize such a protocol so that it gets into the cost-benefit analysis.

One other thing that I would suggest is that you take video tapes of one of these student presentations, and that you give them both to the EPA and Environment Canada. You make them *required* watching for all permit holders who wish to discharge harmful substances into the environment. Perhaps that would remind them that they have responsibilities larger than simply saving tax dollars and increasing shareholder profits. Also, it would remind them that when old ladies like me go away, that there will be young people to take our place. We will not go away and we will not shut up.

Martin Visnosky, citizen, Erie, Pennsylvania

Good afternoon Commissioners. Thank you for allowing me to speak. I am Martin Visnosky from Erie, Pennsylvania and I am here talking for myself, unaffiliated, although I am affiliated with many groups.

I am going to be real brief because I think everything has been said and it has been said at the four Biennials that I have been to before this. We're pissed! This goes on and on and on and on. I hear Theo Colborn once again give a presentation about endocrine disruptors and transgenerational effects. I hear my First Nation and native American brothers get up and once again tell us how they are not getting any justice in the lands that they first inhabited. I hear my colleagues and friends in the audience come up time and time again and say the same things. The governments, the Parties to this Agreement apparently are deaf. All your good efforts and your predecessors' good efforts are falling on deaf ears.

I watched as the pulp and paper cluster role, which this year, was passed on by EPA become a joke. There's no phase-out of chlorine going on. They've legitimized the use of chlorine dioxide which still produces dioxins. I watched the Clean Air Act debacle in the United States -- greater than $10-million spent by industry -- once again, it just happens to be air this time, calling good science and good health recommendations bull. Calling it 'bad science.' I can't take it anymore. I think many people in this audience have expressed that very same thing. They've been coming to these Biennials way longer than I have. We have just had it.

Walter Bresette perhaps indicated what may happen within the next couple of years; people are going to go to the streets I believe. Because it's falling on deaf ear in governments. My own state, as others have pointed out, my governor has taken it upon himself to gut regulations by something called the Regulatory Basics Initiative. At the alter of economics, at the alter of increased profit for business, it's asinine.

I hope the school children here and the young babies in the audience live to their generation and live to have generations in the future, but I am becoming more cynical as I attend more and more meetings, and watch more and more studies proposed when studies aren't necessary. The facts are there. Let's get on with this project. I urge the Commissioners to urge the Parties to get on with the job at hand. Live up to maintaining and protecting and enhancing the biological integrity of this system. Thank you.

Pat Lupo, Benedictine Sisters, Erie, Pennsylvania

Good afternoon Commissioners. I am Pat Lupo. I am with the Benedictine Sisters of Erie, Pennsylvania. I would like to begin by sharing the principles lived by my Benedictine community and modeled at Mount St. Benedict, our monastery and Glinodo Center, my place of ministry. Glinodo is a center rooted in Benedictine tradition, where we strive to educate and enable people to value self, others and the earth through recreation, spirituality and equal justice. This also permeates our actions at the monastery. Benedict mandated stewardship over 1,500 years ago. As we practice stewardship today, we emphasize that it is practiced first, in our watershed. We challenge ourselves and others to model sustainability in all that do, realizing that local actions impact global conditions.

The principles that are the basis of our ecological practices are stewardship, sustainability, equal justice and equal spirituality. Our approach is systems thinking. An approach oriented to looking at the interrelatedness of forces and seeing them as a whole -- parts of a common process -- an ecosystem approach. I believe that the Great Lakes Water Quality Agreement is a document that recognizes sustainability and directs the Parties to implement it. An ecosystem approach, systems thinking has been tied to the Agreement from the beginning.

We all live in a watershed. I dare say that most of us here today live in a Great Lakes watershed. Lack of landuse planning, nonpoint sources of pollution, pollution credits trading or permits, biodiversity and trade issues and habitat loss, all happen in our watershed, the place we live. The IJC has provided a forum for citizens in the past and you must continue to do so in the future. We need to address these issues as well as challenge the often halting progress our governments are making.

I offer the following recommendations:

- Do not change the GLWQA
- Encourage governments to recommit themselves to the goals of the Agreement. In the U.S., the deterioration of the Great Lakes Initiative is only one example of the lack of support for principles embodied in the Agreement.
- Focus on sustainable watersheds. Watersheds where we can meet our needs without jeopardizing the needs of future generations.
- Create a citizens' advisory board.
- Reconsider opening up the Biennial meetings once again. The Great Lakes community must come together if we are to work together to create sustainable communities in our watershed.
- Encourage the governments to stagger appointments to the IJC.
- Encourage the governments to support the RAPs and to expand RAPs to deal with nonpoint sources of pollution, and human health issues.
- Support and act on the recommendations that we have heard regarding indicator species, environmental justice and the equity and parity issues.
- Trade agreements that do not incorporate enforceable environmental and labour standards into the core of the legislation is unacceptable. We must deal with this issue that impacts all of our watersheds.
- Sustainability is certainly the term of the '90s. Make sure that the governments understand that it calls us to recognize all the dimensions that exist in our communities, our watersheds.
- The social, the economic and the inter-environmental factors are all interconnected. In a

> sustainable watershed, the community will address the root of the problem and not just the manifestations.

Let me say in closing, please have a look at the wonderful document that we have from President Clinton's Council on Sustainable Development. I believe that only passion will sustain a lifelong commitment to stewardship. Let us all let passion for the earth fire our spirits. Thank you.

Susan Bayh, U.S. Commissioner, IJC

Let me just suggest one comment to Sister Lupo. First of all, if one person can make a difference, YOU are making a difference. We saw some of that outcome yesterday with your students, and secondly, I am thinking about moving to Pennsylvania so my kids can be exposed to you.

I would like the labour group to come up. I am about to introduce them for their 30 minute presentation.

In Europe and in the early days in the United States, the coal mine industry used canaries in their mines to check the healthfulness of the air that was being breathed by those people in the mines. People knew that when something happened to the canaries, something was going to happen to them. In modern days, they don't use canaries anymore. We are about to hear from a group who stands on the forefront of many environmental hazards -- the labour industry. In the past and as we explored with our labour-focused group in Toronto, there has been a traditional tension between the labour industry and the environmental movement -- that tug of war between jobs and the quality of the environment with most of the people in the labour industry caught right in the middle -- trying to decide whether to protect their jobs, protect themselves and their families. We want to encourage a dialogue in the environmental movement with the labour movement so other individuals can't use this wedge issue to divide us and to make sure everybody is working together for a quality, clean environment for our workers, for our families and a just transition in our industries.

Please come forward. I don't know all of your names so I am going to ask you to come forward and introduce yourselves. This is our presentation from the labour movement.

INTERNATIONAL JOINT COMMISSION
GREAT LAKES WATER QUALITY AGREEMENT
PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

LABOUR PRESENTATIONS

Jim Mahon, Environmental Chairperson, Local 1520, CAW Union

Thank you, I would like to thank the International Joint Commission for this opportunity to address you. My name is Jim Mahon. I am the environmental chairperson of Local 1520 of the Canadian Auto Workers Union and also chairperson of my own local's environment committee and chairperson of the labour caucus of the Ontario Environmental Network.

I would like to continue our previous theme of presentations that we have had to the International Joint Commission about just transition. As we've heard over the past couple days, our countries, both Canada and the United States, and the Great Lakes are in serious trouble. Both human society and the natural environment face critical problems that threaten our future and that of our children. As environmentalists, and trade unionists, we are committed to solving these problems. Our best chance of doing so is to work together as allies in a common cause.

The labour movement and the environmental movement share much common ground. We all want a sustainable, healthy, caring society for ourselves and our children. And at the same time we are all at risk, in our workplace, in our communities, and at home. The environmental hazards pose threats to our health, our safety and our future. It was referenced in the introduction to the labour presentation about the example of the canaries that were used in the mines and there's no question that workers are in that situation to day. Similarly, we can put members of the public in the same position. Present societal trends work against sustainability and restoration in both the environment and the economy. Rapid deregulation is destroying the safeguards that labour unions and environmentalists have fought long and hard to win.

Corporations are being freed to pollute and exploit, while citizens and workers are pitted against each other and the struggles become more complicated. Companies and Ministries are being exempted from public disclosure rules so that they may keep secret key information on health, safety and environmental protection.

With government budgets being slashed, what little protection remains cannot be properly monitored or enforced. Present directions toward self-regulation, simply don't work. On their own, workers and environmentalists can do little against these powerful interests. Separately, we lack the information, resources, time and energy that is needed to fight the necessary battles. But together, we can oppose, divide and conquer and develop strategies and take on the problem. Together, organized labour and the environmental movement already know the strengths that come together from unity. We are working together to broaden our understanding and to share strategies and resources and to support each other in our common struggles.

We heard Dan Emerton from the U.A.W. call on workers to reject the strategy of job blackmail. Workers should not have to choose between environmental health, physical health, and that of financial health of their own family.

Organized labour has given presentations since 1993 to the IJC on the subject of the need for a just transition strategy. I have with me today, two presenters, Ken Glassco of the Communication, Energy and Paper Workers Union in Canada, and Jane Perkins of the AFL-CIO. I would call upon Ken to address you on the subject of just transition.

Ken Glassco, Communication, Energy and Paper Workers of Canada

Thanks Jim. My name is Ken Glassco. I am not a representative of the Communications, Energy and Paper Workers Union. What I am is a rank-and-file local union president, duly elected by the membership that I represent. In addition to that, I am also president of the Sarnia and District Labour Council which is basically Lambton County. I am also a board member of our Health, Safety and Industrial Relations Training Fund for the National Union which also includes the environment. I am a labour rep in Lambton Economic Renewal Group within the city.

I wanted to tell you a little bit about my local. But I would like to talk to you, as I am calling it "shop floor" talk, not philosophical things about what seems a fuzzy picture about whatever just transitions might end up being, but the way that I feel and I think some of our members feel, what happens on the "shop floor."

My local is a composite local made up of Cabot Canada who manufacture carbon-black, about 60 members there; Nova Chemicals, 70 members. They make styrene. It is also called Novacore when you go out west. Union Gas, operation and clerical units, natural gas distributors. Laidlaw Environmental Services is one of the newest bargaining units in Local 914 who operate a landfill and an incinerator. Bear Rubber, my plant, where I work, where I draw a paycheck from as an elected union person, 900 members and we manufacture synthetic rubber from various different chemical feedstocks. And the one that I don't like to mention that often, but I *have* to, Welland Chemical who are on strike against their employer for 3-1/2 years. They made aluminum-chloride and they repackage chlorine.

As you can see, we represent a lot of members who are affected by the petrochemical industry, the various environmental groups, federal, provincial laws depending. And of course, the various sectors of our own community which is really Lambton County.

When you talk about the environment, or health and safety, you get different and varied opinions from those who work in these chemical plants, these operating units and landfill sites. Some of our plants were built in the early 1940s, Dow, next door to us, Polymers we were called then. We are now called Bear Rubber. For a number of reasons, access to feedstocks, everything is basically interconnected among those plants whether you are talking electricity, steam, feedstocks whatever, access to the markets, of course. They tell me 70% of our markets for these chemicals that we make and our rubber is within three-four hours drive away. Of course, one of the real reasons why all of you are here and that is access to the cold, clean water. It is used in the process itself, converted to steam, used it to cool the chemical processes and whatever. It's a little hole in a tube in an exchanger, of course. It can have a disastrous effect on water quality if it is not contained. A small upset in a reactor can cause serious flaring and have an impact on air quality. In a somewhat minor accident of a tanker carrying styrene down 401 or 402 can have the same disastrous effects. But this is our livelihood. This is where we work. This is where we make our living and our paychecks. It enables us to buy our houses from the construction industry and their respective unions. Our CAW friends from Windsor allows us to buy their automobiles which they make. Of course, food and whatever we get from Lambton County.

In past years, you have probably heard from a friend of mine, a fellow trade unionist, Brian Core, who works for my union, talk about society and who will pay the price for these decisions that affect the environment. The just transitions position put forward could be considered as one of those options that are available to business, labour and government. But just transitions has not got down to the "shop floor." Hardly anybody has even heard of it.

I suggest to you that all of those groups must work together -- workers and their unions, umbrella organizations, such as labour councils or their counterparts in the U.S., local governments, state and provincial governments, business interests, special interest groups, environmental groups, native groups. I suggest that we all work together but NOT to the detriment of any one of those particular groups.

To the governments, business groups and environmental groups, I suggest that you work closely with the unions in those particular areas of your concern. We tried to do this in several areas in Sarnia throughout the years, mainly in some of the industries that we represent, mutual, agreeable, voluntary limits to various chemicals which are lower than guidelines or TLVs or any laws in the U.S. and Canada. I might add that they are achievable in many workplaces and have been worked out by health and safety committees and joint environmental committees. Strategies regarding the environment in the workplace, chemical spills, containment spill teams have all been the subject of joint union/management and environment teams in many of the industries. Environmental committees have sprung up throughout the workplaces. A lot of them negotiated, but not all, some of them are voluntary. Theirs have been a busy task over the past number of years; finding a blend of the resolution to the health and safety problem in the environmental emissions through changes in procedures has been a monstrous task for them. But with a little guidance and instruction, they work very diligently on the task at hand, changing some of our 1940s plants into 1990 plants.

One of the areas that we had that was a real concern is what happens when there is an accident or a spill. We have had operators, members of our bargaining unit, operators in charge of a unit, *charged* by the Ministry of Labour and taken to court, dragged up there in front. Whose responsibility is it then? Is it the unions, is it the employees, is it the companies? So we've been able to work our a practice with regards to the employer, so that workers can have access to legal counsel. They are able to get ahold of somebody. They do not end up having to pay out of their own paycheck for this. It isn't one provided by the company, it is one that the worker and/or their union can select together and it is not the same lawyer that is used by the company, because usually if the worker gets charged, the company gets charged also.

These environmental committees have been in place for quite a while. We found that, with regards to some things, they are kind of going stale. They've done a lot of work on internal warning systems, operational problems, lack of training, mismanagement in some cases. A lot of those have been looked at and been fixed, or working on fixing.

One of our concerns now is where do we go to from here internally? These committees, I feel, and I have been told, they seem to be floundering a little bit and they seem that they're pretty good inside-resources, but outside, they don't have much to do.

In my association with these companies over the years and I am going back awhile. We have been able to work with them in a lot of different areas of mutual concern with regards to levels for benzene and styrene and whatever. The constant goal has been to eliminate or reduce -- or the sign outside says "Zero means zero" -- for a possibility of exposures, but at the same time, insuring the stability and the economic wellbeing of our members. In most cases, we have been able to work out a lot of the problems. I would be lying if I said *all* of them. Some units have been shut down because they just can't make the grade in the 1990s. Of course, Dow Chemical, next door to where I work, is basically gone out of the chlorine business and the number of workers at that plant has been *drastically* reduced over the years.

From talking to our members, it doesn't make sense to jump on the bandwagon and partake in a huge parade of the environmental groups. As a consequence, if they do that, they are working very diligently to eliminate their own job and paycheck. You will find a few that do get involved but for the most part, they would prefer to sit back, do their work and get their paycheck and survive.

I am going to give you an example of what happened to us a number of years ago. Michelin Tire was not a very labour friendly company in Canada so they tell me. There was organizing activities on the east coast, Nova Scotia, with regards to Michelin Tire and the labour groups got totally ticked-off at them. Subsequent to that, the Canadian Labour Congress, AND, which is our national labour organization and the Ontario Federal of Labour, which is the provincial one, said "we want everyone to boycott Michelin Tire." That really didn't make any sense to us. Michelin Tire and Bear Rubber were our largest customers. A successful boycott and us included, would have meant that we have to shut down half of the plant.

It is possible that the just transition could be an avenue to attempt this but as of now it is miles away from the "shop floor." Again, the labour council worked very hard years ago with a company in town. They are now very small, Ethyl -- you've probably heard about Ethyl and the lead. They had a new business venture that they wanted to get going and we then worked with the provincial government of the day, which was the NDP, and together it seemed like we made some ground and they opened up a new business venture at the Ethyl Plant. Of course, much to our chagrin, five years later, they ended up shutting down that same business. There are only about 25 of them there now.

Somewhere along the line as Jim and our chair mentioned, there has to be some neutral ground that will enable workers to earn a paycheck without fear of endangering either their fellow workers or the environment. Companies, to make a profit, and to invest in the future, and don't endanger their employees or the environment. Unions to represent their members with respect to their livelihood, safety and health in the environment. Unions can't be unions without having any union members. You can't be a member of my union unless you are working, and you're not going to be working unless you have a job, and there are not too many jobs around that is meaningful work that is available, and industry can make some kind of a profit based on your work. I do believe that profits that they do make should not be profits unless all conditions with respect to the environment, safety and health, and the wellbeing of their their employees are all of equal value with quotas, production, and the business agenda.

I would like to thank all of you for your time, listening to a rank-and-file person from the "shop floor." I think we all have a common goal. I think it's the mechanism of how we get there that sometimes gets a little cloudy. Thank you.

Jane Perkins, AFL-CIO

Ill talk fast. My name is Jane Perkins. For the past 17 months, I have been attempting to help the AFL-CIO in Washington, DC figure out how to approach environmental issues in a more consistent and rational way. President Sweeney was good enough to appoint an advisory committee to help me think through some of the issues that confront us. That committee wanted to do two things: one was to establish a set of principles so that we could always turn to something and say 'how do we know what to do when we are faced with environmental challenges?" and then to see if we are making any sense to ourselves and to people on the "shop floor" as you just heard a moment ago, to apply these principles to a couple of issue areas to see where they get us.

I want to read to you from a resolution that was passed on September 25th at the AFL-CIO Convention about these principles so that you have a sense of how we are looking at things and where we are trying to go here:

> *The AFL-CIO is committed to finding one strong voice on these environmental matters through a process of engagement, that invites debate and discussion in our movement. We will develop our unique perspective on solutions to environmental challenges and we will*

> *provide a clear, consistent, public point of view in these complicated issues.*
>
> *To begin, we will embrace our work-environment principles and use them as a foundation from which to reach out to our brothers and sisters in order to find the highest common-ground agreement on the problems, as well as the solutions, inside the labour movement. We will use these principles in the same manner with our allies in the environmental debate. We will establish where we wish to do so our own collective long-term view, find allies who share that view and then build long-lasting political alliances that connect our workplace, community and global concerns with theirs. We will make long-term plans to build the political power required to ensure that proposed environmental changes have a positive impact on working men and women, including the changes in fiscal mechanisms that will be needed to protect workers, jobs and communities during periods of transition.*
>
> *The principle of economic rights asserts that it is the responsibility of the American Labour Movement to protect worker and community economic interests, both long and short-term, in the face of environmental challenges. The principle of the highest common denominator acknowledges that* ***community*** *for the labour movement is an extension of the workplace. And the concerns that we have for quality of life for our members at work automatically apply to them as citizens.*
>
> *We are committed at every level of issue discussion to* ***finding*** *the highest level of agreement on environmental solution. The principle of just transition recognizes that to move from one economic or environmental paradigm to another requires transition on many levels. We agree to* ***analyze*** *the effects of change on workers, industries, consumers and communities, and plan for effective, smooth transition for all parties affected by environment-induced change.*
>
> *The principle of common sense requires that we proceed sensibly in the pursuit of new directions on environmental matters, but proceed with a* ***purpose*** *and with the widest possible input within the labour community, and with all allies in the environmental debate.*

We have been seriously going in this direction for 17 months. I can't tell you what the results are going to be. We are applying this *thinking* and this approach to climate change, and I am going to leave with you, particularly the American commissioners, a paper that will outline for you some positions we've taken on climate change. We are applying this also to chlorine issues. We've got a working group looking specifically at how to do this.

I was heartened today to hear your Science Advisory Board bring up to you the subject of ecological economics. It seems to me that if we could figure out how to take the fear out of the economic implications that everybody 'thinks' will be involved with making changes, we won't have to be afraid anymore. We can just then make a plan. Thank you.

Commissioner Bayh

I want to applaud our friends in Labour for being *under*-time. How about our SUNY students, where are you? Are you ready to go?

We heard yesterday from some of our future leaders, some young people. Now we have some students from right here at the State University of New York at Buffalo. We are very, very excited to hear from them. You are scheduled for only 15 minutes. How many of you are there?

INTERNATIONAL JOINT COMMISSION
GREAT LAKES WATER QUALITY AGREEMENT
PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

SUNY AT BUFFALO STUDENT PRESENTATIONS

Barry Boyer, SUNY, Buffalo

We have two presenters that I'll introduce. They have promised to be finished in 15 minutes or less.

Commissioner Bayh

Thank you very much and welcome.

Barry Boyer, SUNY, Buffalo

Thank you Commissioners, welcome to the Niagara Bioregion. As was just suggested our purpose is to hear the voices of the next generation of environmental managers in the Great Lakes basin. These are students enrolled in the joint seminar in water quality taught by Dr. Joseph DePinto and me, Barry Boyer, at the State University at Buffalo. Our objective in the course is to have the students learn about mass balance models and the ways that they can be applied to understand policy initiatives, in this case, the virtual elimination strategy. For the two months that the course has been working on this problem, the students have been organized into two teams: the PCB team consisting of Pat Costanzo, Brian Remy, Jieyuan Song and the person who will be presenting today, Amy Kendall-Scoins; and the Mercury team consisting of Fredrik Lund, Monica Barbot, Mark Orlowski and the presenter, Kevin Reedy. We have detailed reports that flush out the brief summaries that they will provide today. We'll submit those for the records. At this point, I would like to turn the microphone over to Amy.

Amy Kendall-Scoins, student, SUNY, Buffalo

Good Afternoon. My name is Amy Kendall-Scoins. I am speaking on behalf of the group which studied PCB contamination in the Great Lakes.

The Great Lakes Water Quality Agreement of 1978 committed the United States and Canada to view the Great Lakes basin as an ecosystem and regulate accordingly. It also committed the two Parties to virtually eliminate the persistent toxic substances from the Great Lakes, including PCBs. Now, almost 20 years later, the Parties are just taking their first steps towards virtual elimination. The Great Lakes Binational Toxics Strategy, signed by the U.S. and Canada this year, contained several defects which will ultimately prevent us from realizing virtual elimination of PCBs in the Great Lakes.

First of all, this strategy is not legally binding on either Party. It contains language which indicates that it does not give rise to legal obligations on the part of governments or public. In the U.S., that strategy will only be enforceable as a matter of law, if its provisions are added to the current regulatory and statutory scheme. It also fails to define key concepts, such as virtual elimination even though that concept has been used throughout the strategy. "Virtual," generally means for all intents and purposes, but the GLWQA speaks in terms of zero discharge. There has been significant debate about the meaning of the words 'zero discharge." Does that phrase mean undetectable? Does it mean none? Neither Party has defined cost effectiveness, though the concept has been used throughout the strategy. It is necessary to define the term so that each country has notice of its obligations. The strategy also contains language which essentially negates the commitments made by each country -- ambiguous and non-committal language -- lessens the effect of the strategy. For example, commitments are diluted by the addition of language, such as *where appropriate*, or *where feasible*. This language sends the wrong message to polluters and suggests that the countries are not serious about reduction and the eventual elimination of toxics in the regions.

The U.S. commitment is not really a commitment. It speaks in terms of *voluntary* reduction. Without either incentive or mandates, businesses have no significant reason to reduce the current levels of PCBs. These problems all stem from one underlying defect in the countries' approach to the Great Lakes. The failure to commit to an all-encompassing ecosystem approach. Currently we have two separate sets of goals, two sets of laws and regulations, yet we have one common ecosystem.

Though the production of PCBs was banned in 1977, PCB contamination is still ongoing. The U.S. commitment primarily deals with PCBs in transformers, though we know that PCB contamination comes primarily from three sources: air deposition, through wet deposition or precipitation; dry deposition; and air/water exchange. The EPA's 1994 Report to Congress entitled "Deposition of Air Pollutants to the Great Waters" states that air deposition accounts for 89% of PCB contamination to Lake Superior. Sediment resuspension also contributes to PCB contamination. This includes upwelling due to wind stress, thermal induced vertical water column mixing, and turbidity slides which are gravity induced, downward slides of unstable delta ... sediments, and storm events.

Finally, groundwater contamination has not been addressed. The strategy does not deal sufficiently with these issues, much less define specific goals for the remediation of contaminated sediments or require controls on the amounts of PCBs into the air. The question is where do we go from here? Mass balance modelling has been used on a limited basis to help simulate the long-range effects and pathways of PCBs. Modelling can further the virtual elimination effort by identifying sources and pathways of PCB contamination, assisting in the design and evaluation of remediation efforts, optimizing field monitoring programs, and generally informing the discussion of virtual elimination.

The current mass balance models are incomplete and inaccurate in several senses, however. First they assume a well-mixed water column, and well-mixed sediment layer, though we know that neither is correct. Secondly, they view the lakes as a whole entity instead of focussing on different segments of the lakes. To correct these problems the IJC should urge the two countries to jointly fund research projects designed to gather more accurate data on the lakes. Models should then be constructed to adequately account for different areas and different concentrations of PCBs. This will assist the two countries in defining a common goal for cleanup, which is the second step in the process.

The IJC should encourage the two countries to sit down together and define a common set of goals, as well as a detailed plan of how to reach those goals. Once these goals are in place, the IJC should pressure each country to enact those goals and plans into law, either through a binding international treaty or through an action enforcement within each country's existing legal system. The IJC should also urge each country to allow the other to effectively comment and participate in the internal lawmaking process, insofar as the laws will affect the Great Lakes basin.

In some 20 years after the phrase "virtual elimination" was incorporated into the Great Lakes Water Quality Agreement, we are not very much closer to virtual elimination. Commitment and decisive action are needed from all participants in order to reach this goal. Thank you.

Kevin Reedy, student, SUNY, Buffalo

Our project was to address mercury as a persistent toxic substance that should be virtually eliminated. This was a complicated and difficult task. There is a substantial lack of information in regard to mercury and another problem is that it is not in one standard. **We recommend** that the IJC should develop a consistent standard for use when discussing mercury, as well as serve as a repository for information for mercury. This will greatly aid in the ability to properly evaluate mercury as a persistent toxic substance.

When we speak of virtual elimination of mercury, the IJC should refocus and underscore the reason why. We recognize that the great strides that were made ... [tape change -- some dialogue missing] ... to compel industry to voluntarily reduce emissions of mercury. The human fetus provides many compelling arguments to justify the voluntary reduction of mercury emissions. The extremely low levels necessary to cause permanent and severe damage to the central nervous system is alarmingly low. This is exhibited by women who have eaten contaminated fish and who show no signs of the disease, but their children were severely affected and permanently damaged.

There are also issues of environmental justice and the people who use the Great Lakes to provide protein for their dietary intake are historically those who are economically disadvantaged. When discussing exposure to mercury, agencies have sought to determine what an acceptable level is. We feel this is the wrong approach. Searching for what level of mercury in the environment is safe is wasteful and inherently flawed and the current methods used to address mercury may underestimate the final outcome.

For instance, when we set out to try to determine the bioaccumulative factor of mercury, the model we used was the Lake Tox Model. This model assumes that the lake is in a fully-mixed state. It also averages out the metabolic activity of phytoplankton, zooplankton that metabolize mercury throughout the foodchain. This ignores the possibility of hot spots of methylmercury that may exist throughout the lake. These hot spots in turn, would reflect high levels of methylmercury in the fish that aren't reflected. Trying to determine a level of safety for mercury is not practical. We should recognize this factor and move forward with the acceptance that mercury is highly toxic in small amounts and therefore, should be eliminated.

It is interesting to note that in early Rome, prisoners who were sentenced to death were sent to the mercury mines. No sophisticated equipment or sophisticated software was necessary for them to know the damaging and paralyzing effects of mercury. We must grasp the intuitive concept that mercury is highly toxic, the basic premise should be that if a fish advisory for mercury consumption exists, then there is a risk and risk of harm. We should recognize that having an advisory in place blames the victim of mercury contamination and does not address the source. That is where we must focus our efforts.

We recommend that the IJC encourage governments to develop a program that would lead to voluntary reduction. If governments were to ensure that when they engage in purchases in the open market, or engage in contracting, that they did not purchase or contract with those that do not comply with the concept of virtual elimination. We feel that this would provide industry with the proper incentive necessary to create virtual elimination in the environment.

Our paper provides some data on the medical industry and how they succeeded in virtual elimination. It points out that *any* reduction in mercury is worth the time and effort. Thank you.

Barry Boyer, SUNY, Buffalo

I would like to conclude by first noting that Kevin was playing hurt. He came down with the flu overnight and it was lucky that he was able to make it through his presentation. But also, that we have established for this course, a web site in which we are encouraging all those interested in virtual elimination to participate in the dialogue as to how we get there and how quickly we can move in that direction. Thank you very much

Susan Bayh, U.S. Commissioner, IJC

Professor, I have one request. Could you make copies of their paper available to us? Thank you, very, very much, and thank you students. I teach a college course and I wish I had you guys. You are doing very, very well.

Next, we are going to hear from Elaine Kennedy. She is representing the Lake Ontario RAPs, again on the front line of trying to get these areas cleaned up.

INTERNATIONAL JOINT COMMISSION GREAT LAKES WATER QUALITY AGREEMENT PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

LAKE ONTARIO RAPs PRESENTATION

Elaine Kennedy, Lake Ontario Remedial Action Plan

My name is Elaine Kennedy. I am chair of the public advisory committee of the St. Lawrence Remedial Action Plan at Cornwall. However, today I am speaking as alternate to the chair of the Ontario Public Advisory Council. The chair, Bob Hartley, sends his regrets.

The Ontario Public Advisory Council is the group that represents the Public Advisory Committees across Ontario. We meet once a year to exchange ideas and concerns and formulate policy that may be of benefit to all public advisory committees. I was chosen at our meeting in Espanola on September 21st to speak to you as their official representative.

I would like to explain several of our concerns. First and foremost, we urge the IJC to continue to pressure the governments of Canada, the United States, as well as their respective provincial and state governments to live up to their agreements concerning the Remedial Action Plans. Although the Areas of Concern in Ontario are at different stages, we speak with one voice to say that the Remedial Action Plans must be completed, implemented and monitored.

We are very concerned with the abdication of responsibility toward the RAPs at the provincial level. Just as an aside, when LaMPs first came around and started being the shining light and seemed to be much more popular, I must admit to a slight case of jealousy, but I decided that they are after the same thing as we are so I must not be that. I think perhaps one of the problems was that the RAPs were around so long, they weren't as "popular."

Second, the OPAC has sent a motion to the IJC, the COA Board of Review, the Prime Minister, the Premier and others, urging that they NOT open the Great Lakes Water Quality Agreement for renegotiation. We are concerned that the trends in both U.S. and Canada have been away from enforceable standards and regulatory programs in favour of voluntary approaches to address toxic pollution problems. We believe, while voluntary approaches are appropriate in some applications, they must be backed up by strong and enforceable government regulations and standards as required by both the GLWQA and domestic laws in both countries.

If however, it turns out that the Agreement is opened up, we ask the IJC to stand firm and insist that the standards not be lowered and the governments focus their energies and attention to fulfill their obligations under the amendments of 1987. We are very concerned that many of the most important obligations of the GLWQA have not been completely fulfilled, including those to:

- develop and implement regulatory strategies to reduce and to eliminate inputs of persistent toxic substances through the philosophy of zero discharge;
- develop and implement measures to control atmospheric deposition of toxic pollutants contaminating the Great Lakes;
- develop action levels that protect the health of Great Lakes inhabitants from exposures to mixtures

of toxic chemicals from a multitude of sources;

- develop and implement cleanup plans for AOC and LaMPs;
- develop and implement watershed management plans to control polluted runoff from urban and rural lands; and
- develop compatible criteria to classify and guide the cleanup of contaminated sediment.

Third, OPAC urges the IJC to safeguard the public process as part of the Remedial Action Plan process. The volunteers on the Public Advisory Committees are mirrors of our society and play a vital role. Not only are they a group of citizens from many stakeholder groups, but they are an *informed* group of citizens, having gained a great deal of expertise in the last eight to ten years.

There is a real danger that governments are going to strangle the volunteer groups by penny pinching in the area of support. Volunteers are free, but they need to be supported with the basics: a coordinator, a meeting place, stamps, paper, envelopes for the minutes and maybe a cup of coffee. I repeat again, *volunteers*. Although I am retired with so much free time and little to do, it is not my full-time job. Heavens, I am also chair of the Board of Directors of the St. Lawrence River Institute of Environmental Sciences. I am on Resource Stewardship Council of SD&G, and other things that take up some of this loads of free time that I have. I even tried to take a course on how to fund nonprofit organizations. Do I have to recruit only retired people into the committees so that someone can make it their full-time job to find funding partners?

I would also like to expand for a moment on the need for the coordinator, by relating the situation in my Area of Concern. Back in January 1997, when MOE cut out its coordinators, we lost ours. The leader of our Remedial Action Plan Team. We were in the final stage of our Stage 2 report, and actually lost five months because a temporary coordinator had to be put in place to finish that job. But what about Stage 3? Who is going to be our leader representing the governments? Is there going to be a RAP team with people from Environment Canada, Ministry of Environment, and Ministry of Natural Resources? When the Public Advisory Committee of the St. Lawrence RAP changes its role and becomes a proactive group, who will we liaise with? We can be successful with partners to implement our RAP but we need the IJC, Environment Canada, MOEE, OMNR on board. OPAC believes that it is YOUR duty to make sure the governments provide support to the Public Advisory Committees so that they, in whatever form they take, can help as implementation of their RAP takes place. We realize that support may not be the same extent as Stages 1 and 2, but it must be there.

I would like to refer to a couple of points that I found in your Priorities Report on page 53. There is a bullet about government agencies are not solely responsible for implementing RAPs and nongovernmental partners are essential implementers of RAPs, and that's fine but one of the concerns that I have is the burn out of public advisory committee leaders. If you have the burn out of a leader in a particular area, who takes over and where, until they find somebody else to take over that leadership role? I have a concern about that.

Another bullet, governments must continue to provide resources and technical assistance to facilitate RAPs. Personally, at this time, I would like to thank Environment Canada for their support. I would like to point out that yesterday when I asked Ms. Wiley about the role of the department for MOE, I didn't get an answer. And, I would hope that she would think about it.

Another bullet, a high priority should be placed on identifying creative financing strategies for RAPs (this is an important area where IJC can play a value-added role), I'll be calling you.

To end on a positive note, I would like to inform you that during our Council meeting in September, we also celebrated our successes. We had special in-depth presentations from six of our Areas of Concern and representatives from the others told us of their successes. I would like to point out that the fish are spawning in areas that were too polluted to support even the benthic community. Industries whose representatives sat on the Public Advisory Committees are proud of their accomplishment and are encouraged to continue their environmental efforts. Also, the citizens' groups in many of the areas have expanded their role to fit the needs of their communities.

I am sure the Commissioners receive regular reports about the success stories that are taking place in most Areas of Concern. I hope these reports show you that we citizens on the Public Advisory Committees are proud of what is happening in our area and that we will continue to work toward our goal of a healthier ecosystem in the Great Lakes basin, that we can proudly pass on to future generations. Thank you for this opportunity to speak to you today. I will be back in two years, when I hope to see representation from the Native people on the Board and to remind you of your responsibilities and reward you with tales of success. Thank you.

Susan Bayh, U.S. Commissioner, IJC

On a personal note, I would like to thank Elaine and all of those like her compatriots, not only in Lake Ontario, but all the RAPs, because you are the reason they are working.

I would like to ask one or two of the representatives from local government. The representatives of local governments in the days of devolution, these are the people on the front lines of trying to get the work done.

INTERNATIONAL JOINT COMMISSION GREAT LAKES WATER QUALITY AGREEMENT PUBLIC FORUM

Niagara Falls, Ontario
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LOCAL GOVERNMENT PRESENTATIONS

Barbara Cavenaugh, Council member, Buffalo, New York

Good afternoon, I just came from my son's piano recital, so I have to change roles, if you will just give me a minute to do that. My name is Barbara Cavenaugh. I am the council member at large for Buffalo, New York. As an at large member, I am elected by the city as a whole. Thank you for this chance to advocate for a healthy Great Lakes ecosystem.

As a local city official who is involved with several environmental initiatives, I would like to talk about how these initiatives could be strengthened and supported by the IJC and the national governments. In Buffalo, we are going through the process of redeveloping our waterfront. For the last 100 years, Buffalo's vast and beautiful waterfront had been put at the service of industry which took over its banks and eventually left a toxic legacy in sediments and soil throughout the city. In ensuing years much of this land has found its way into the city's hands. As we have tried to plan for the future of this land, we have been grappling with the issue of how to maintain public access to the shoreline while selling some of this land as private interests propose developments for it. The common council, of which I am a member, has adopted a waterfront greenway plan that calls for a continuous trail within generous greenspace and what amounts to a lineal park along the water's edge.

The greenway is seen not just as a transportation corridor, but as a buffer between development and the water's edge. And as a filter, cleaning runoff and other pollutants before they can get to the water. As council members though, we face conflicts when much needed private job-producing enterprises are proposed for the city's waterfront. The solution we came up with is a city policy that reserves a public-access easement whenever waterfront land is sold by the city. Having been involved with the struggle to pass such a policy, I am convinced that it would probably be a useful tool to promote throughout the basin. I know that the City of Tonawanda, a neighbour of the City of Buffalo, has also passed a similar measure calling for a 50-foot easement at the water's edge designed to maintain the continuity of the river walk. In practice, they have found this provision has worked surprisingly well for all involved. Preserving open land at the water's edge is valuable for many reasons, both ecological and social. One of the principle arguments against the policy is that it cuts the value of the land and therefore it deprives the city of revenue, which for Buffalo and other struggling communities, is desperately needed.

I propose that the IJC push for the national governments to develop a funding source that can aid cities who wish to enact such a policy with financial incentives provided, either on adoption of the policy, or when a land transaction successfully preserves the shoreline, or perhaps at both points. I would also hope that the IJC would find a way to promote such policies throughout the basin, through education and promotion of the benefits of open-space at the water's edge.

We have also developed a more comprehensive ordinance which will be introduced shortly that sets up a special review district to preserve green space and trail corridors on the city's waterfront. As part of this ordinance, we have listened to our friends at Great Lakes United and propose to prohibit the granting of new permits for the storage, use, manufacture or disposal of bioaccumulative chemicals of concern designated in the Great Lakes Initiative, published by the U.S. EPA on March 23, 1995.

While we would far prefer a basinwide ban on these materials, we feel an obligation to do what we can at a local level, to stop persistent toxics. I ask that the IJC continue to seek a quick phaseout of persistent toxics, but I also suggest that the IJC and the national governments work to publicize, promote, and provide technical support for local initiatives that embrace this goal.

Another important step that the Buffalo Common Council has initiated is the appointment of a good neighbour committee to negotiate with industries bordering the Buffalo River on issues of pollution prevention, emergency response and clear company/community communication. Although progress has been slow, I believe that the good neighbour model is a viable one that would be very productive if reproduced throughout the basin.

Finally, I would appreciate support from the IJC in reinforcing projects such as these that we have initiated in Buffalo. I also want to stress that city officials count on the IJC to keep the big picture in mind and push fulfillment of the main elements of the Great Lakes Water Quality Agreement. Thank you very much for this opportunity this afternoon.

Ken Schmidt, General Manager, Essex Regional Conservation Authority

My name is Ken Schmidt. I am general manager with the Essex Regional Conservation Authority. Just a little back ground first to show that the Detroit River, which is the river that I am here to speak about, is truly binational in nature, I was invited to speak here by SEMCOG, which is South-East Michigan Council of Governments, including the City of Detroit and down-the-stream municipalities.

Second point of clarification for those, especially Americans, conservation authorities are autonomous corporate organizations existing in Ontario. There are 38. They exist in 10% of the province, representing 90% of the population. Their goal is manage natural resources on a watershed basis, and conservation authorities have been most instrumental in many of the successful RAPs in Ontario.

With respect to the Detroit River, going back in history to 1702, Cadillac made the following comments about the Detroit River while traveling through. He termed it the "earthly paradise of North America," suggesting that at that time, that it deserves all the care the king could provide to keep it up and to attract inhabitants to it. Over the years, the Detroit River has changed substantially. There are currently 32 miles of river representing or feeding 4-million people in terms of drinking water on a daily basis. It's probably one of the most intensely used river in terms of recreation, boating, Great Lakes shipping; heavily used for sport-fishing, notwithstanding the quality of fish; and is certainly the centre of industrial industrial growth, especially pertaining to automobiles.

We have had in the Detroit River for the last ten years, a Remedial Action Plan ongoing. Someone mentioned to me this morning that Remedial Action Plans, even in big cities, like Toronto, when they were started and during their first four or five years were perceived to be initiatives of the federal and provincial governments for some purpose known only to them, to be implemented by them at some point of their choosing. That process to some extent, characterizes the early years of the Remedial Action Plan process in the Detroit River.

We have spent ten years of trying to work together -- American and Canadian, federal and provincial, federal and state, and about fifty members of a binational public advisory council. In the end we completed a Stage 1 document, the State of Michigan as the lead agency chose to "streamline the process." They produced a 1996 report on the Detroit River which hopefully by the year 1998 will reflect the requirements of the Stage 2 document. The Detroit River does have, in fact, ten impaired beneficial uses. There are many challenges ahead for the Detroit River and the municipalities and the communities and the federal/state/provincial governments on both sides.

I am here to talk, not in negative terms, about the process or the results, but rather to talk about the fact that during those 10 years, municipalities, the City of Detroit has spent over a billion dollars (since 1971) dealing with wastewater treatment facility upgrades and is currently undertaking a new initiative for another billion dollars to discontinue combined sewers overflows, to institute industrial pretreatment programs, to try and reduce the number of contaminants coming out of that point source.

The Rouge River which is a RAP unto itself, a tributary to the Detroit River, has recently undertaken programs valued in excess of $500-million. The City of Windsor has spent over $100-million on sewage treatment facilities in the last while. Those are fairly significant numbers, fairly significant contributions with federal funding on both sides of the river.

In addition to those municipal activities, private land owners, conservation authorities, State of Michigan, Department of Environmental Quality, has been proceeding very rapidly with respect to biodiversity strategy and biodiversity implementation programs.

We also, on the Detroit River, are now initiating a very exciting community initiative which is the American Heritage River and Canadian Heritage River program to designate the river as a heritage river. That program is one which is developed by the community and is showing a tremendous amount of excitement.

I was asked to come up with a couple of **recommendations**. I have six and I will go through them quickly for you:

- first of all, the status report which was produced by the IJC regarding the Detroit River Area of Concern has had a benefit. The process may not have been perfect. Many of the government agencies may not have been pleased with it, but Minister Stewart, the federal Minister of the Environment did come down to the region and visited with the Governor of the State of Michigan. On both sides, there have been some clear commitments. I would certainly encourage the IJC to continue those kinds of assessments, but to do it in a more consultative fashion involving municipalities, involving many more stakeholders, and certainly involving those government agencies in a fashion that they would be more supportive at the end.
- There are two or three definite outcomes from that: Number 1, I would suggest that it is incumbent on IJC to, in the end, determine a commitment from federal/state/provincial governments. Those commitments, that level of clarity is something which has been grossly absent and will certainly help municipalities and help agencies in the future.
- Another level down in terms of government ministries on both sides, Michigan DEQ, U.S. EPA and Environment Canada and Ontario Ministry of Environment have not seen fit to have a common focus. They have been a part of the delay process for ten years in the Detroit River. It is incumbent upon IJC to encourage these senior levels of government to communicate more effectively, to ultimately come to a common voice and ultimately *assist*, (and I use that word advisedly), assist communities to develop an implementation program which is going to benefit the river.
- I believe that it is very important that there is a recognition of the fact that communities are the ones that should be involved with the implementation and I would certainly encourage IJC to use that term, this "empowering" of communities in order to both instill interest and also instill both short and long-term implementation and maintenance of remediated rivers.
- Number 5, very quickly I would suggest that research monitoring, as stated this morning by the Council of Great Lakes Research Managers, should in more and more cases be done by universities. Universities are part of the community and continue to subject their reports, their research, their monitoring reports to peer review, and are available to the public and in my

opinion, collectively universities have a tremendous role in assisting and providing information which is going to again, be supported by the public.

- Last point, why are industries and others involved with Remedial Action Plans? Why are they involved with Heritage River Designation programs? I contend that municipalities and private interests and more and more we have to understand the fact that senior levels of government are not the *only* source, they are an important source of funding for the future, but I contend that if we are going to instill a level of interest in industry and major industry is prepared to come to the table for both of these, there has to be an economic benefit. I would suggest that a major role for IJC would be to identify on a Great Lakes basinwide, and not just contaminated sediments or other specific areas, that IJC would consider the possibility of an economic advisory council in order to identify the economic advantages of a clean Great Lakes system.

Thank you.

Susan Bayh, U.S. Commissioner, IJC

I want to encourage anybody who wants to give us written remarks too, we would be happy to take those those as well.

INTERNATIONAL JOINT COMMISSION
GREAT LAKES WATER QUALITY AGREEMENT
PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

NIAGARA RIVER RESTORATION COUNCIL PRESENTATION

Jim Greer, Chair, Niagara River Restoration Council

Hello, my name is Jim Greer. I am chair of the Niagara River Restoration Council. Since the signing of the revised Great Lakes Water Quality Agreement in 1987, the Niagara River Restoration Council, formerly the Public Advisory Committee of Canada, and the Niagara River Remedial Advisory Committee of the United States have been active in efforts to restore the Niagara River ecosystem.

In the process of working with their respective government agencies on the development and implementation of Remedial Action Plans [RAPs], the two committees have developed a close relationship and have implemented a number of joint projects and activities. The most recent of these is a public outreach slide presentation which describes the RAP cleanup progress on both sides of the Niagara River and the issues and parties involved in the RAP programs. The two committees would like to preface a joint statement which will be read by Bonnie Soley, CoChair of the Niagara Remedial Advisory Committee with a viewing of this coproduced slide presentation. It is entitled "The River RAP for the Mighty Niagara, Our Shared Resource," and has a running time of approximately twelve minutes. We appreciate having the opportunity to share it with you and since it is a self-contained sound apparatus, anybody who is interested should come a little bit closer. Thank you.

[Slide presentation equipment was set up too far away from microphone to permit a complete transcription of sound track]

The Niagara River is a 58-kilometer or 37 mile channel, connecting Lake Erie and Lake Ontario. This local watershed includes numerous creeks and rivers. As we enter the river from Lake Erie, we see Fort Erie on our left and Buffalo on our right. As it flows north, the river passes through some of North America's most historic, scenic and fertile lands.

The twin cities of Niagara Falls, New York, and Niagara Falls, Ontario sit on the brink of the world famous cataracts where every minute, millions of gallons of water from Lake Superior, Michigan, Huron and Erie plummet more than 165 feet into the gorge below.

From the top of the Niagara escarpment, from Kingston and Lewiston, we view the Niagara River meandering its way to Youngstown and Niagara-on-the-Lake where it meets Lake Ontario.

Through the years man and nature have changed the river's character, its landscape, its view, its ecosystem. Access to east-west shipping routes and abundant water supply, and harnessing of the river's power brought industry to the Niagara Frontier in the 1800s. The region became known as the gateway to the west. The population grew as more industry, attracted by cheaper power and plentiful water supply came to the area..

Urban areas developed to satisfy the growing population. The shoreline's character changed dramatically. Physical alterations, such as bulkheading and filling, and other urban encroachments *altered the natural drainage patterns, bringing about wetlands disruption and loss of wildlife habitat.*

Wildlife populations are not as varied or numerous as they once were. Wastes from homes, agriculture and industries went into the air, the water, off of the land, contributing to the river's potion. Consumer demands for new and improved products, and the development of chemicals for agriculture, transportation, and defense spurred industrial expansion in this century.

Industry, agriculture, hydro power and residential and commercial development all have taken their toll on the once pristine Niagara River. We have been dealing with this legacy from our past since the mid 1900s. Pollution of the river has come from many sources, inactive hazardous waste sites, sewer system overflows, surface water runoff, contaminated sediments and inflow from other Great Lakes.

Toxic chemicals that persist in the environment, such as PCBs, mirex and chlordane, and metals such as mercury, are known to cause problems. PCBs and DDTs were banned a number of years ago and although some effects are still evident, they have declined.

Public advisories recommended that people limit their consumption of certain types of fish caught in the Niagara River because of chemical contaminants found in their flesh.

We know that we must restore the mighty Niagara and preserve and protect it for future generations. It is a precious resource. It supplies drinking water which after treatment meets or exceeds all standards for safe consumption. It is a source of coolant ... process water for many industries. And the large volume of water at the river's rapid changing elevation are ideal conditions for generating electrical power. The falls and the many scenic vistas and a variety of recreational opportunities attract millions of visitors every year. The river is a backbone of ... and tourist industry as well as thousands of people. It provides many opportunities for residents and visitors alike: fishing, sight-seeing, sailing and boating, bird-watching, hiking and biking, water skiing, nature walks, photography and painting.

Within the Great Lakes watershed the IJC identified 42 areas with serious pollution problems. Working with citizens from these Areas of Concern [AOCs] federal, state and provincial governments developed a Remedial Action Plan [RAP] for each area to restore its beneficial uses. Two RAPs were developed for the Niagara River, one for New York and one for Ontario. They focused on returning the river to what we agreed were its best uses, drinking water, swimming and fishing. Each document or RAP is an action plan that identifies the problems and their sources and establishes remedial actions. The health of humans, wildlife and aquatic organisms are used to evaluate the ... of the ecosystems and identify these problems. In addition, the beneficial uses of the river for such things as recreation and commerce are considered. A number of remedial action initiatives and demonstrations have already taken place, are in progress or are planned. An inflow of water from Lake Erie and the outflow in Youngstown and Niagara-on-the-Lake are being monitored to assist scientists in determining what chemicals may still be entering the river. Research projects are being sponsored and conducted by industries, universities and government. Pollution abatement programs in New York and Ontario require municipalities and industries to significantly reduce and in some cases eliminate toxic discharges into lakes, rivers and streams. Better sewer systems and state-of-the-art sewage treatment plants such as the ones in Welland and Fort Erie, Ontario, ... Buffalo and Niagara Falls, New York play important cleanup roles. Industries such as Occidental, DuPont and Atlas Specialty Steels have spent millions of dollars ... their industrial facilities and inactive waste sites. Contaminated sediments were removed from Gill, Black and ... Creeks. In the Welland River, contaminated sediments were removed by sucking them up and pumping them through pipes to a treatment facility. Data shows that all these efforts by industry and government have resulted in significant contaminant reductions in the water and the sediment of the river. The chemical industries' CAER or care program focuses on reducing pollution and implementing safety and environmentally sound management practices during transportation and at industrial sites.

... communities around plant sites is a very important and essential element of CAER. Therefore many industries have formed community advisory panels to encourage a continuing dialogue with their neighbours. The agricultural industry is doing its part too. Farmers are reducing pollution in nearby waterways by containing barnyard waste or inhibiting runoff with buffer strips between cultivated lands and streams. You can help too. Participate in a household hazardous waste day when its held in your area. Sponsored by a number of communities they provide households with a safe and ecologically sound way of disposing of unwanted household chemicals. Many local communities in New York and Ontario have educational ... programs such as the Yellow ... Road. Is there one in your community? Shoreline cleanup days are sponsored by citizen's groups. Find out when there will be one in your community. Or help organize one.

An integral part of each RAP is citizen involvement. To facilitate this participation, the Niagara River Restoration Council [NRRC] formerly the Public Advisory Committee was formed in Ontario at the Remedial Action Committee in New York. As members of the NRRC or RAP we work with our respective agencies on implementing our Remedial Action Plans. In Ontario the NRRC works with the Ministry of Environment and Energy and the Federal Department of the Environment. In New York the RAP works with the Department of Environmental Conservation. Our mission statements are similar. Each promotes the restoration, preservation and protection of the Niagara River ecosystem. Representing a broad cross section of each of our communities, the NRRC and the RAP review information and reports, provide input and recommendations regarding remedial action alternatives and support public outreach activities. Progress reports are made on a regular basis by our respective agencies. As new information becomes available it is incorporated into the RAP process.

Just as our respective agencies need to share ... and work on joint projects, members of our two communities meet together to exchange information and develop international projects and activities such as producing this presentation. Restoring the Niagara River watershed and the Great Lakes environment will require ...

Bonnie Soley, Cochair, Niagara River Advisory Committee (U.S.)

Thank you. My name is Bonnie Soley. I cochair the Niagara River Advisory Committee on the American side. Jim and I have been working together along with our respective committees since the initiation of the RAP. The two committees have been involved in the process since the very beginning and although each of our countries developed a Remedial Action Plan, a RAP for the river, we see the river as one river, two cities on either side of it, and it just happens to flow between them.

Discussions have taken place between the two committees and the regulatory agencies regarding the development of one RAP since early in the process. Although one RAP would appear to be the ideal, we recognize the realities of such an endeavour. Our countries' regulations and laws are different. In all likelihood, resolution of legal and philosophical differences, in enforcement, and in implementation, would only serve to bog down the remediation process. The most important issue is not that we have one RAP but that efforts to effect a cleaner river and healthier ecosystem continue to move forward at an acceptable pace in both countries. Of course, we would all like to see more done in less time. But the truth is that there has been significant progress in the last few years. Virtually all of the point source pollution that once went into the river has been eliminated. Now, both countries are devoting many of their resources to the more difficult to manage nonpoint sources. This will take time, dedicated efforts and substantial money from a number of areas, municipal governments, industry, agriculture and most importantly, citizens. That's where we come in. Where the RAP committee can and should play a determining role.

From the beginning, as the plans were being developed, we advised our governments, reviewed the RAPs and provided input. We believe that perhaps now, our most important role is to keep our citizens aware and informed of the status of the health of the river and its ecosystem. We must continue to build an informed and knowledgeable constituency that demands that our elected officials from the project that will ensure that these RAPs are fully implemented.

This is a long-term investment. We are speaking an intergenerational constituency of a need to educate our people -- the decision makers of tomorrow. We also believe that joint international efforts such as the slide show you have seen are more effective and build greater public awareness. These joint activities usually gain more attention from the media and the public. The IJC created us to ensure the public's input to the RAP process.

If its Commissioners truly believe in the RAP process and the public process they created, then they need to support it with resources and funding. Our agencies belts have been tightened and more demands are being placed on them every year. Efforts for public outreach, especially cooperative international projects and activities must be supported. This will enable us to build and sustain a strong constituency, a champion for the restoration of the Niagara River and the Great Lakes. Thank you.

Susan Bayh, U.S. Commissioner, IJC

We are going back now to open microphone format, then we will be asking Jim Chandler to read some names.

Jim Chandler, U.S. Secretary, IJC

Yes, I will try to speed this up a little bit as we have about 30 people who had indicated that they would like to speak this afternoon. We will try to fit them all in.

INTERNATIONAL JOINT COMMISSION
GREAT LAKES WATER QUALITY AGREEMENT
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PUBLIC MEETING -- PART 4

Daniel Green, Montreal, Quebec

Thank you. I represent *Société pour Vaincre la Pollution.* An environmental organization based in Montreal, Quebec. I've been coming to these meetings since 1982. I have always said the same thing and I'll say it again today. The Commission and its Agreement excludes Quebec. The Agreement says, in Article I, the definition of the Great Lakes ecosystem stops at the Quebec border. This is a case, I submit to you, of contamination of that representation.

The Treaty of 1909 states clearly, high contracting Parties agree that waters defined as "boundary waters and waters flowing across the boundary shall not be polluted on ether side." The Quebec section of the St. Lawrence River flows across the boundary of Massena, New York. The polluted international waters entering the Quebec section, thus, agree with the intent of the Treaty that make your Commission possible. This situation of exclusion is incomprehensible since the recent Environment Canada study states that 40% of all of the St. Lawrence River's loadings comes from the Great Lakes.

In 1987, the Commission tried to accommodate this situation by adding the words *involving* and *consulting* jurisdictions that are not included in the Agreement, meaning in essence, Quebec. But we believe that this *involvement* and *consultation* is not, is not the same thing as being a full participant to the Agreement. This is why the dismal participation of Quebec people and Quebec bureaucrats to the Commission proceedings. This will remain until Quebec is recognized.

We believe, by looking at the intent of the Treaty, comparing it to the intent of the Agreement, the Agreement does not respect the intent of the Treaty. We have a proposition; the same proposition that we made in 1982 and all the years following, and all the years following that I'll have to come to these meetings until this is resolved.

We believe that Article I of the Agreement should be amended, which I call the Quebec amendment, that states in essence that the definition will be amended to include all of Quebec's waters and the St. Lawrence River up to a point where the composition of the water in the river becomes less than 50% Great Lakes water. That's around Trois Riviere section. This amendment would be a starting point for negotiations. But for negotiations to start, somebody has to put it forward. I have been putting it forward -- You haven't -- why not?

I had a chance to look at the document that you will be making public tomorrow "IJC and the 21st Century," and I leafed through it quickly. I was given a copy to look at. And ... [tape gap] ... opportunity for you if you have the courage to put it in this document. I urge you in your next Biennial report to recommend to the Parties to include Quebec in the Agreement. I hope by the next millennium this crazy situation will be corrected, and I hope that this Commission will have the courage to correct it. Thank you.

Bob Olsgard, Lake Superior Alliance

I am Bob Olsgard. I am associated with the Lake Superior Alliance and I'm their coordinator. I am also a local government official in my home county. It's great to see some local government officials here today. The stuff from Buffalo sounds great. But what I got to talk to you about is Lake Superior, because what I have not heard about today, yesterday is Lake Superior.

It's just six years ago that the IJC's meeting in Traverse City, Michigan focused on Lake Superior. We had a big press conference with EPA and Environment Canada touting the binational program to restore and protect the Lake Superior basin ecosystem. It was tremendous press. The State of Michigan compared it to the crown jewel of the Great Lakes. It is. It is the head waters of the Great Lakes. Indeed it could be said to be the head water of world's freshwater system, perhaps the heart of freshwater, the thing we really do need on this planet. It was a great idea to restore and protect the Lake Superior basin ecosystem, really a very good idea. We were hearing a lot about zero discharge that day.

In this meeting, I don't think I have heard 'zero discharge' spoken by anyone except the citizens. I'm puzzled about that. It's in the GLWQA. I noticed Tracy Mehan this morning stumble and *almost* mention zero discharge, then go to virtual elimination. Now, we're not even close to virtual elimination. I got a chance to speak with Mr. Mehan afterwards, and apparently zero discharge is just too hard, but ladies and gentlemen, if we can't do it on Lake Superior where we have three-quadrillion gallons of very clean water and only 500,000 people, if we cannot somehow assemble the political will and financial resources to do it. Thank you very much. I am going to wait until I see the zero, because I want that gentleman to hold up that zero real high, okay. That way at least three or four time, we'll have zero in this meeting. I think it's a very important concept.

I brought some fish from Lake Superior. I can buy this at my local grocery store. It's got a warning label on it Lake Superior trout. If you are pregnant, if you're nursing, you should not eat certain sizes, you should not eat very much of it. When are we going to assemble a process to get to a place where we can eat the big trout out of Lake Superior? It's great food.

I have written comments that we issued on the LaMPs, the details. Come on everybody -- Zero! Okay, it's in the GLWQA, zero discharge for Lake Superior. I want you to instruct the governments to adopt the load recommendation put forward by the Binational Forum, and let's get some real steps towards zero. We have a pile of papers, at least knee high, and we don't have action yet. Thank you.

Raymond Vaughan, Coalition on West Valley Nuclear Waste

Hello, my name is Raymond Vaughan, of the Coalition on West Valley Nuclear Waste. I want to thank the Commission for all its work on Great Lakes issues and for its recent formation of a Nuclear Task Force. Much of my time as a citizen activist is spent on nuclear issues, especially those at the West Valley nuclear waste site in New York.

The West Valley site located in the Lake Erie basin south of Buffalo operated as a nuclear fuel reprocessing plant from 1966 to 1972, and as a nuclear waste burial ground from 1963 to 1975. Although the site nominally dealt with commercial nuclear material, much of the reprocessed fuel and much of the buried waste actually came from U.S. defense projects. Various problems caused both operations at the site to shut down in the 1970s, and no new wastes have come to this site since that time.

The future of the site remained in limbo until 1980 when U.S. Congress passed the West Valley demonstration project act. This law authorized the U.S. Department of Energy to help deal with 40-million curies of high-level, low-level and transuranic waste at the site. The U.S. DOE, together with New York state has been working for 15 years and has spent roughly $1.5-billion to deal with these stored and buried wastes left at the site. Work to date has been primarily vitrification of high level waste and various remedial actions designed to keep other wastes under control.

The work to date, while expensive is just the tip of the iceberg. The West Valley EIS process, underway since 1988, is working to find alternatives for either site closure or long-term, on-site management of wastes. The estimated price tag ranges up to $8.3-billion. What makes the West Valley site so hard to manage is its complex and rapidly evolving geology. The site is a complicated mixture of near-surface bedrock, highly fractured and possibly faulted, and deep glacial soils consisting of alternating layers of fine grain tills, and coarser grain sands and gravels.

I am working on a five-minute basis. Are you one a three-minute basis? Okay. Much of what I have to do then is on my written comments. Skipping toward the end, dealing with the difficulty of keeping waste on site indefinitely, under long-term human surveillance, for hundreds of thousands of years.

I ask three things of the IJC:

- Recognize the importance of an accurate inventory of radionuclides. This will not be an easy task for the West Valley site. The Waste Bureau records from the 1960 and 1970s are sketchy and contradictory, resulting in an order of magnitude uncertainties for important radio nuclides, such as radium-226 and plutonium-239. The most conservative credible estimate should be used.
- Second, I ask you to keep track of current problems and emissions. Be aware, for example, that the average monthly emissions of airborne iodine-129 from the site, increased from 2 microcuries to more than 150 microcuries when high level waste vitrification began in 1996.
- Third, look at what the proposed site closure options mean for the long-term health of the basin. Consider whether long-term, on-site waste management for hundred of thousands of years is realistic, especially in the face of severe erosion. Again, details are in my written comments. Recognize what quantities of radionuclides will flow into Lake Erie if such a plan fails. I ask the IJC to comment on the West Valley supplemental draft EIS to be issued in 1998, a supplemental draft EIS (so called) will be up for comment. For details on the EIS process and for a copy of the supplemental draft, I ask that you call Sonya Allen of West Valley Nuclear Services Company.

Thank you.

Jim Cowden, Member, Cuyahoga River RAP, Chairman, Health Committee, Rep., Lake Erie LaMP

My name is Jim Cowden. I am a member of the Cuyahoga River RAP, Chairman of ... Health Committee, and a representative to the Lake Erie LaMP. I congratulate the Commission on the landmark acknowledgment that populations exposed to PCBs and other contaminants, suffer significant health consequences as a result. I would like to add a footnote to that conclusion. The National Research Council, with the support of ATSDR published a report in 1992 on environmental neurotoxins. Among other issues, they expressed concern about the prevalence of subclinical toxicity, i.e. exposure to induced adverse effects too small to produce immediate symptoms of which can alter a wide spectrum of behaviours and exhibit damage after long-latent periods. The report questioned the validity of the safety factor approach in setting standards for neurotoxicants. These are chemicals that pose a threat to central nervous systems and at least a dozen are found in the Cuyahoga River sediments and 14 were found in fish tissue samples in 1992. The applicability of that assumption for all neurotoxins is denied on the basis that other toxicants in the environment that cause the same or similar response will, in effect, lower the threshold dose of the toxicant of interest. A person may have a threshold effect in a pure environment, but we don't have any pure environments! The report states flatly that a lack of a threshold makes the safety factor approach biologically indefensible. In other words, our current practice of setting safety standards for many chemicals in many medias are NOT necessarily valid.

Our present water quality standards, for example, may be set well above an adequate protection level.

Since dose-response curves for estrogen disruptors are also non-linear, the same factors can apply and Dr. Colborn stated the same thing in her presentation earlier today. I want to point out that Dr. Daly's experiments in feeding whole fish with multiple contaminants to her animal population represents the *real* world in which we live. We live in a sea of chemicals and synergy is something that must be taken into account. Only about 10% of the chemicals, 70,000 or more, in commerce have been tested for neurotoxicity.

I have been coming to these meetings for about 20 years. I used to depend, for my work in Ohio, on the great research that was done by scientists with the various committees. I hope that the Commission will undertake a review of chemicals, more than just tier-1 and tier-2, which may have these major problems associated with the lack of standards. Thank you.

James Pitts, representative, Common Council, City of Buffalo

To the Commissioners and fellow public officials and citizens who are here today. I represent the Common Council of the City of Buffalo and I would like to present an abbreviated form of my testimony.

Earlier this year, we passed a resolution within the Common Council, unanimously, which basically called on the governments of U.S. and Canada to live up to their commitments and fully implement the GLWQA. We feel that this Agreement is crucial to cities like Buffalo, especially as we consider their revitalization and the issues involving toxic spill off, brownsfields, and their redevelopment.

My vision for the City of Buffalo's renewal includes a strategy that I call the "Green Gold" strategy. It is simply a strategy which will allow Buffalo to develop a major niche in itself within the worldwide community and economy by developing attracting business that solve environmental problems. For too long our city followed the outmoded models of allowing any industry to locate in exchange for promises of jobs. As we began to look at this Agreement, we think it is very, very important in order to attract businesses, that we solve many of the environmental problems that the City of Buffalo has. In face of these problems, Buffalo needs strong leadership from the IJC and the governments, and environmental agencies of the U.S. and Canada.

I have identified three main initiatives:

- We need an end to the discharge of persistent toxic chemicals. It is inexcusable to me that substances that are know to be long-lived and harmful to human and animal life are still being used and released where they can impact on our health. It is hard enough to clean up mistakes of the past without adding to these problems in the present by allowing the continued release of persistent toxics.
- We need increased attention and funding for cleanup of each of the 42 Great Lakes toxic hot spots of which, the Buffalo River Harbor is one. The IJC could be most helpful in this regard by doing whatever it takes to refocus attention on the need to adequately fund the full cleanup of these hot spots.
- Lastly, we need more funding to be made available for water and sewage infrastructure improvements. Combined sewer overflows are a serious problem in Buffalo, while the taste of the City's water is often abominable. Until we have had these basic problems solved, we can never say that we have fulfilled the promise of the GLWQA.

In ending, many local communities throughout the Great Lakes are taking progressive steps aimed at clean, healthy futures that we can all embrace. We depend on the IJC to follow through on its end to keep basinwide progress on track. I ask that the IJC's Commissioners think of themselves as partners with local officials and activists who are struggling mightily while depending on the Commission to keep the national governments moving in the right direction. We are counting on you. Please don't drop the ball. Thank you.

Terry Yonker, Executive Director, Lake Erie Alliance

Commissioners and whoever's left, I guess. My name is Terry Yonker. I'm Executive Director of the Lake Erie Alliance which is an international coalition of individuals and organizations, Americans, Canadians, and North American natives dedicated to the protection, restoration and long-term sustainability of the Lake Erie basin ecosystem.

Prior to serving as executive director of Lake Erie Alliance, I served in the same capacity at Great Lakes United and the Michigan Audubon Society where we conducted nearly a million dollars of research on Great Lakes colonial water birds and eagles. The picture you see of "Cosmo," the cross-billed cormorant came from those studies that appear in all of our literature. Prior to that, I served with the State of Michigan for a number of years and served as Governor Millikens environmental advisor from the early '70s.

Lake Erie Alliance comes before you today basically, with concerns about the application of the ecosystem approach itself, or more precisely, what we feel is the misapplication of the ecosystem approach with respect to the development of RAPs and LaMPs. The ecosystem approach is fundamental to carrying out the objectives of the GLWQA and the workshop on Friday underscored the need to bring humans back into the ecosystem approach. I might add that the ecosystem approach was actually recommended in 1970, prior to the first draft of the GLWQA which we were involved in.

According to Article II of the GLWQA of 1978, the purpose of the Agreement is to restore and maintain the chemical, physical, biological integrity of the waters of the Great Lakes basin ecosystem. We have all heard this. In Article I of the Agreement, the Great Lakes basin ecosystem is defined as the interacting components of air, land, water and living organisms, including humans, within the drainage basins of the St. Lawrence River and the entire definition. Further, according to Annex 2 of the GLWQA, RAPs and LaMPs are to serve as an important step toward virtual elimination of persistent toxic substances and towards restoring and maintaining the physical, chemical and biological integrity of of the Great Lakes basin ecosystem.

The Ecological Committee report to the Science Advisory Board in 1993 concludes that an ecosystem too narrowly defined leads to a loss of system integrity. The ecosystem approach insists on a richness of definition of the ecosystem so that large issues facing the Great Lakes basin ecosystem can be addressed. I believe and we believe that the failure to embrace that conclusion has resulted in the failure of RAPs and LaMPs to address human health, economic and other social/cultural issues, as other than 'parking lot' issues to be addressed at a more convenient time.

Our attention today is too narrowly focused on the lakes themselves. We are looking from the shore. We are looking out into the lake to see what the problem is. What we need to do is sail our craft out into the middle of Lake Erie and look shoreward to see where the real problems are. It is important that we look at the relationship between people and the lake and not just the relationship of biophysical components within the lake. The evidence today of human health impairment due to human interaction with the Great Lakes is compelling. Cause and effects have been established. Studies have been replicated and cross-referenced with animal studies time and time again. Good science has been done. It is time that human health, economic and other social/cultural issues be backed out of the parking lot and out onto the ecosystem parkway. I suggest that we review the ecosystem approach and that the Commissioners reassert this process.

One quick comment about mercury. We have heard a lot about it today, and tomorrow is the 27th

Anniversary of a recommendation that came out of the Governor's Office of Michigan, after our first toxic emergency in the Great Lakes and that was mercury. If I can recall the recommendation as eloquently as it was written, we ask the industries and the governments to look towards the elimination of the production, use, and discharge of mercury to the Great Lakes. That was 27 years ago and we are still trying to decide what to do with mercury. We knew what the health effects were then. We know what they are now. GET MERCURY OUT OF THE GREAT LAKES.

Carol Mongerson, Rep., Coalition on West Valley Nuclear Waste

I don't have a lot to add to what Ray Vaughan has already told you. He gave you a good background. I urge you to read his written testimony.

I would like to point out that it 13 years to contaminate that site with millions o curies of radioactive waste, al lot of which will end up in the Great Lakes eventually. We've been working for another 21 years to do something about it. The DOE is solidifying the high-level liquid waste but they're not getting rid of it. There no way to get rid of nuclear waste. If that waste remains on site then it's due to go off but there's no place to send it so far. We will eventually end up with serious contamination in the Great Lakes starting with Lake Erie; there's a direct connection between West Valley and Lake Erie. And the site will erode. The radioactive waste will all end up there eventually. I urge you to do whatever you can to enter in on the DEIS process that Ray has told you about and to go for a retrievable solution, one which will cleanup the site, not bury it. The buried waste and that is the proposal -- it's fairly apparent, the DOE and the State of New York are heading for. Only a citizen task force stands between Lake Erie and that happening. Please use whatever influence you have to prevent any kind of burial of that waste. Thank you very much.

Laura Rose Day, NWF, GLNRC and citizen member, Lake Superior Binational Forum

Hello, my name is Laura Rose Day. I am with the National Wildlife Federation, Great Lakes Natural Resource Center. I am also a citizen member of the Lake Superior Binational Forum. What I would like this afternoon is to take another three minutes of your time, adding up to a total maybe seven that you've heard about Lake Superior in this entire meeting. This is beyond comprehension to me.

In 1989, a citizen, Bruce Hyar from Thunder Bay, Ontario made a recommendation that was a good one as has been pointed out today, to make a demonstration project on Lake Superior -- a zero discharge demonstration project -- and everyone in all quarters agreed -- citizens, Ojibway people, the Lake Superior Alliance, the governments, right on down the line -- that this was a great idea, and there were lots of sound bites and lots of commitments made. And the meeting two years from today will be a decade after the IJC recommended that the governments demonstrate zero discharge on Lake Superior. Well, I can tell you that I spend two or three days, sometimes four out of every two months, sitting with various interests in the Lake Superior basin, trying to forward recommendations on achieving zero discharge for the Forum.

The governments to date, have not acted on a set of targets and timelines; reduction schedules that were put forward by the Forum. This is industry, environmental groups, teachers, health professionals have told the governments "you need to set these targets" and the governments published those recommendations in the Lake Superior LaMP and they've done nothing with them. We are still waiting years after it should have been out for the Stage 3 LaMP, the stage that actually means *action*, the stage that means *demonstrating something*, hopefully zero.

The same group has recommended that we are so far down the line that we ought not to be thinking about only the nine chemicals in the binational program but we have a multi-stakeholder. This is what we've been asked for, a consensus, a multi-stakeholder recommendation to add chemicals to the list, recognizing that the original list of nine, half of them are banned. We've already done a large part of what we can in terms of end-of-the-pipe solutions. The governments have told us that they can't do it, it is politically unacceptable. They are not willing at this time to add any chemicals to the list. They aren't even willing to consider a process for adding chemicals to the list. It goes on and on. In written testimony, we will submit more examples to you. What I am asking you today is for the IJC to *make* the governments accountable.

When I came here yesterday, thinking that I would see some significant number of Lake Superior government folks, and there were some. And there are government people who are doing very good work, but the bottom line is the demonstration zone is not. We are not demonstrating zero discharge on Lake Superior. It can't happen over night, but it has to happen. It has to happen by some date certain. There have to be actions, put on the table and commitments met. You've heard it over and over. We come back patiently every two years saying okay this takes time. It takes time for industry and environmentalists to sit down and speak the words zero discharge. We have been willing to give that time and credit. It was an accomplishment to speak zero discharge at the same table, but the real accomplishment will come when we start doing something. Please, Commissioners, ask the governments why they have not moved forward on zero discharge. Ask them why they continue to promote special designations that basically engage old technology which will still allow the worst persistent toxics into the cleanest Great Lake. Ask them why, I as a nursing mother, women, pregnant women, sportfisher people, Native Americans, First Nations, can't eat certain fish. Why I can't go out after this my friend, Bob Olsgard and eat the fish he had in that package. Ask them why and if the reason they aren't moving forward on this is that they think the job's done, then have them put it in writing, have them submit to you a report that says that the job is done. If the job isn't done, ask them why not. Thank you.

James Rauch, West Valley Coalition

My name is James Rauch. I am a member of the West Valley Coalition. I am speaking here on behalf of three western New York environmental groups, NGOs, West Valley Coalition, Residents Organized for Lewiston Porters Environment, and an organization called FACTS for a Clean Tonawanda Site. I am going to try to meet the three or five minute limit, but I have a lot of specific recommendations that I would like to make. I have put some time in on this, so I hope that you will bear with me.

I'm pleased to see the Nuclear Task Force creation. I am very disappointed that the number 10 item of the last Biennial Report was not implemented. That's to accord status, persistent toxic status to many radionuclides that deserve the status. The Canadian government's response to item 10 is totally unacceptable. Their response is that basically radioactive materials continue to be given a low priority.

I should go back a bit to 1989 when the last report on radioactivity was issued by the Water Quality Board. This appendix B, volume 3; that's the last report of any detail whatsoever about radionuclides and radioactivity. There's a number of interesting points in here. One of them is that a fingerprint from West Valley was detected by a researcher named S.R. Joshi, in a report he did in 1986 in Lake Ontario, in core sampling of sediments in the lake. The sample showed that the maximum concentration of cesium-137 did not correspond with the fallout maximum in the other lake of 1963, but incurred in 1969-1970 during active West Valley reprocessing operations. I think this is a very significant point that has fallen through the cracks. This is a ten year old report. As we heard from people earlier, West Valley has millions of curies of radioactivity and unstable glacial till deposit that are eroding and will wind up in the lakes. There's no reference in this '97 Priorities Report to West Valley. There is no reference to the Lake Ontario ordinance worksite, which is a former Manhattan Engineering district storage site for uranium/radium ores, residues, 2,000 curies of radium-226 exist in the wetland, with an engineered clay cap but basically in glacial till. This is three times the curie amount at Fort Granby which is given space in this report of eight or nine years ago.

I have some documents here that I will present and make sure the NGF gets them. They need to include the Niagara Falls storage site. This is the one at Lewiston where a large amount of radium is currently stored. The National Research Council recommended that the material there be vitrified as high-level waste because of the radium concentration and the presumed impact to the Ontario downstream watershed. The DOE has ignored that recommendation and in fact, is planning to go ahead with a final clay cap on the site. The site is in the water table, and there are cracks observed initially in the area where the waste is disposed. There are ten monitoring wells for groundwater. As we have had experience at West Valley, these monitoring systems are not adequate to detect leaks through lenses in these deposits. There is no available downstream monitoring. I ask the Commission to see that monitoring is done downstream of the site at Lewiston.

Generally, monitoring has not been performed although recommended lakewide. No real commitment has been made by any of the governments to do the necessary lakewide monitoring for radionuclides. I think that's a point that needs to be made.

I would like to address what is perceived here by a lot of members of the public as an attack on the IJC, but what we need to frame here is ... The IJC has done good work and will hopefully will continue, and the SAB presentation is illustrative of that. What we need to have is the IJC take a more proactive role in getting the word out to the public. It is going to take public will, armed with the information provided by IJC, to get the governments to act, provide funding for the IJC so that the IJC remains independent. I am very uncomfortable when I see people wearing two hats. They work for the governments that are cutting the funding and they are also trying to move forward the goals of the IJC and the GLWQA. They are becoming incompatible.

The loosening of standards, meaning water protection standards in the U.S. The standard for radium-226 was 5 pico curies per litre. This would deliver a two litre consumption a day basis of 5 mg dose per year. These are being loosened. The reason they are being loosened is to accommodate ineffective cleanups. At large number of sites in the basin, specifically West Valley, Tonawanda; Tonawanda by the way is the site that is visible if you go across the South Grand Island Bridge, on your left there's a landfill, 117,000 cu. yds. of uranium/radium wastes in that landfill as a result of Manhattan Engineer Refinery that operated to produce the first Atomic bomb in World War II. It doesn't receive any publicity unfortunately.

The loosening of these standards is an issue that the IJC must address. The target objective of a 1 mg dose per year to basin residents from drinking water in the lakes is a good objective. It's more stringent than anything the governments have adopted. The issue with West Valley is -- if we gave everybody in the basin what West Valley can deliver or for that matter, the Lake Ontario Ordinance works for the Lake Ontario storage site -- 2,000 curies of radium, folks, for your information is enough to raise the entire volume of Lake Erie to the 5 pico curie per litre to the standard that was in force prior to the roll back. We got to think in terms of collective population doses. It is premeditated murder to deliver population doses that we know are going to cause hundreds of thousands of cancer deaths. That's unacceptable to anyone that looks at this. If we walk into a restaurant and shoot someone, that's murder, but if we deliver radionuclides to the drinking supply that we know is going to cause 'x' number of deaths based on the cancer dose, that's acceptable.

Susan Bayh, U.S. Commissioner, IJC

Can I offer you an opportunity? Can you stop right now and at the end of the time, if there is extra time, we would be happy to hear the rest of your comments. There is one fellow here that has been waiting two days to speak three minutes.

Christina Bates, Akron, Ohio

Hello, my name is Christina Bates. I drove here this weekend from Akron to specifically request your assistance in a matter that is in my backyard. There is at this moment a proposal for water diversion in our area before the eight Great Lakes' governors. At this point there has been five votes returned. It requires an unanimous vote and our hope is that one of the remaining three will have the foresight to realize this diversion proposal needs more study, more review and some attention to some very vital issues.

I have had the foresight to prepare the documentation and I will leave this here for you. I can unequivocally tell you that there is another optional water source available without diverting water from the Great Lakes basin. We don't need it. We can provide our water areas with source from our basin. Also, Akron is not telling you that their water resource is already questionable. I can provide you with photos, geographical maps and documentation that Akron is already sending water across the continental divide.

As we speak this is being done. No one is being told. It's not being returned. It's not being monitored. They are informing the eight Great Lakes' governors that there will be no net loss. This is true. They have a tentative agreement with the ODNR to lease water and return it. This, however, does not address the quality. There is nothing in this agreement -- as a matter of fact, the ODNR says we're not responsible for the quality or the fitness. What's happening in my backyard will set a precedent, literally in my backyard, and if it sets a precedent and it's in my backyard today, it will be in yours tomorrow. This is going to change all of our water resources which affect future generations.

Also this proposal does not address treatment quality, pumping station adequacy, stormwater management, erosion, sedimentation controls, the wetlands safeguards, overall re-engineering, the cleansing sources, or the effects this diversion will have on the surrounding entities who are also concerned with their water resources. The basis for this proposal is a project which right now is in litigation and it is a money-making project so there's a lot riding on this. However that does not change the fact that it is not necessary and dangerous and it's going to directly affect me, my friends, my family and my neighbours now. Next it will affect you and yours. And I sincerely plead with you to study this proposal, review these geographical maps; it is quite clear that they are already doing it. As we speak, there are construction crews on my streets, laying water lines across the continental divide. They are proceeding. No-one is waiting for the decision. True, these lines are dry right now, but that's today. What about next week? If the decision isn't made by next week, whose to say? Also, the lease agreement with the ODNR is for 40 years. What happens if that lease agreement fails to be met? Who is going to monitor? Who is going to require the City of Akron and the ODNR to keep their lease? No-one, no-one would have the authority outside of the court and then what does Michigan do? What does Pennsylvania do? What does Wisconsin do? Nothing, they're just out, which is where we are now. You have the power to prevent that and influence it. I would ask that you use it. Take a look at what they are currently doing. You can see for yourself -- there are pictures. All the documentation to go with the reports and you can study it. It's here, it's clear.

Also, I would like to tell you that (I missed the one minute) there are no devices for monitoring or metering.

Jerry Bates

I am just going to talk a bit about what just saying. I am going to make this short and sweet. If this diversion is okayed, we can't trust them to keep the agreements they already have. The documentation in that packet will prove that. How are you going to know whether they're going to, in times of lean weather when it doesn't rain much, that they're going to say that they'll cut back on water today and send more tomorrow or something so there will be a no-net-loss thing. But, all in all, you just have to look at an agreement like this that sets precedents for other states and other countries to drain the basin. You can't trust the "dad gum" city right now not to take the water that they're not entitled to. As far as that goes, make contracts that violate international treaties, which the city has done with three townships. I work at a company that is supposed to be a beneficiary of this water diversion and our company doesn't want it. We have enough water and so does all the rest of them over there. This is strictly a diversion for profit for the City of Akron. That's all I have to say. Thank you very much.

Kathryn Savoie, Arab Community Center for Economic & Social Services, Dearborn, Michigan

Good afternoon, my name is Kathryn Savoie. I am here today representing the Arab Community Center for Economic and Social Services in Dearborn, Michigan. Also known as ACCESS. It is a community-based organization serving the Arab-American community in southeastern Michigan. I'm not an Arab-American, but I am here as the environmental program director for this organization. I think most of you are probably not familiar with the fact that southeastern Michigan is home to approximately 1/4-million Arab-Americans. The largest Arab population in North America, second only to Paris, France for Arabs living outside the middle east, representing over 20 different nations.

My comments are, as environmental program director, directed to the environmental situation of the Arab community living in the neighbourhood known as the South End in Dearborn, Michigan. The South End is a predominantly Arab-American, very low income, largely immigrant community. Over one-third of the mostly-recent immigrants in this community speak no English and one-half are illiterate in both English and Arabic. Unemployment exceeds 30% and the community is considered medically underserved and has many incidents of diseases familiar in other urban centers such as high incidents of heart disease, cancer and diabetes. And, like many other low-income communities of colour, the South End is disproportionately burdened with environmental contamination.

The South End has been at the heart of the auto industry since the early part of this century when Henry Ford built the Ford Rouge complex which to this day dominates the landscape of the South End with a mile-long stretch of factories and smoke stacks. Numerous other auto, steel, meat packers, trucking, waste disposal industries are also located in very close proximity to residential areas. The closest thing in this community to industry is the Salina elementary school which is 95% Arab students. The children on the playground are playing literally under the stacks of the Ford Rouge plant which is the #1 emitter of reproductive toxins in the State of Michigan. Dearborn is home to 12 major industrial sources, including eight auto plants which comprise the Ford Rouge complex, and three steel industries. According to the 1995 Toxic Release Inventory, these 12 facilities collectively are responsible for over 14-million pounds of releases and transfers of toxic chemicals, including 1.5-million pounds of air stack releases directly into the air.

We are deeply disturbed by the large quantity of known toxins which our community is exposed and extremely concerned about the adverse health effects for our community and the wellbeing of residents, especially children. South End residents appear to suffer an elevated incidence of cancers, and respiratory illnesses such as asthma, emphysema and chronic bronchitis, although we have very few studies to show. The Arab-American community also faces significant barriers that hinder the ability of community members to get information about environmental exposures and exacerbate their impacts on health -- language and cultural barriers, illiteracy, discrimination, lack of transportation, inadequate access to medical care. Communities like this bear the greatest burden of environmental pollution but at the same time often have the least access to policymaking processes, and the least resources to respond to environmental hazards. Because Arab-Americans are not recognized by the federal government of the United States as an official minority populations, our ability to even document and get numbers on, and show the disproportionate impact on the community has been extremely difficult.

By way of recommendations, I don't want to repeat all of the many excellent recommendations that have been made, I would like to echo the call for the IJC to develop policies with respect to environmental justice, to help bring justice to all communities that are disproportionately affected by pollution.

I would like to provide comments from a 15-year old young woman from our community who was not able to make the trip here today -- her testimony, as well as a prepared packet for each of the Commissioners with additional information about the Arab community in southeastern Michigan, and their environmental concerns. Thank you.

Doug Anderson, Haudenusaunee Scaruda Tuscarora Nation

Hello, my name is Doug Anderson from the Haudenosaunee Scaruda Tuscarora Nation. We are known as the people of hemp. I came here to address the issues that deal with toxic waste, low-level radioactive material that are genocides. I did use the word genocide, that was committed upon the Tuscarora people because of the Declaration of Intent. The Declaration of Intent is only designed to clean up the water, it doesn't clean up the groundwater. I have the books here if anybody wants to see. They talk and show the contamination from the New York State Power Authority. There's 3-million cubic yards of low-level radioactive material that rests under the ... which is on our nation. The groundwater on our nation has been contaminated because of the Declaration of Intent by both nations, Canada and the United States.

The sovereignty of a nation rests upon, if you have the ability to write passports that are accepted by member states to the United Nations. No citizen in the U.S. or Canada, no citizen has that right. Yet the Haudenosaunee people issue passports that are accepted by 40 member states to the United Nations. It looks similar to this. This is what I travel on. This is what the United States, Canada and 40 other member states out of 185 countries they honour it.

The problem that we have here is, United States and Canada have violated the sovereignty of our nation. They have violated the four natural forces to life itself. The four elements to nature: you have water which you have contaminated; you have the ground which you have contaminated; you have the air which you have contaminated; the only one left of the life forces of nature, is fire. Will it kill you or will you kill it? Ozone depletion, radiation -- I live less than ½ mile away from the Lake Ontario retrievable storage facility site. There lies half of the world's supply of plutonium-238, 240, K65. K65 has a half-life of 4.5-million years and five half-lives, it will be back where you can live on it. That's 22-million years. Today we have 631 Tuscaroras living today. Statistics just came out by the doctors; there's a 10% increase of cancer in the children of our nation. If that is not genocide put on by the U.S. and Canada, I don't know what genocide is.

According to the International Convention signed on the war crimes of genocide by the United Nations where I hold position there as an ambassador to the U.N. I charge the United States and Canada with genocide. Now I give YOU three minutes to tell me what will you do to clean up this situation. The water table on our nation is contaminated, caused by the Declaration of Intent. Everytime you built your man-made structures, you changed the groundwater flow. Today, will your books, not my books, your books show that our water table has been contaminated. All the chemical corporations that flow from the Great Lakes through the Niagara River, they are sucked in by the intakes of the reservoirs which was signed by a Treaty of 1950, February 27, to regulate the international flow of the water. Both Canada and the United States have been charged with genocide. What do you people do to prevent this? Are you going to bring us clean drinking water now that you've polluted it? Now YOU have three minutes. I am waiting.

Susan Bayh, U.S. Commissioner, IJC

Your issues are definitely timely. We do have a Nuclear Task Force that looks into issues just like the ones you are talking about. They made a presentation this morning. We are in a position where we don't implement, so we would not actually clean up the nuclear problem. But we can, as we have in the past and will continue to do in the future, put pressure on the governments to deal with this situation that you are talking about.

Doug Anderson

We had the Nuclear Regulatory Commission come in. They put down their Ion probe to check the radiation. It went crazy. They told me in a letter that it was caused from the sun. But yet in your papers here, you books show that all the groundwater movement that is coming directly at our nation. How are you going to stop genocide on our people if there is only 631 left? If we have a 10% increase in cancer. The guy that likes to write out the zero. In 40 years, we will have zero population. Do you have anything to say? The person next to you? The other man? Anybody on the Board?

Geoffrey Thornburn, IJC, Ottawa

The one thing I can point out to you sir is that the Nuclear Task Force that we do have that will be reporting on a number of activities in the basin may touch on some of the things you are talking about. That report will be likely made available by the Commission to the public later this year. I would point out that the Commission deals with *advice* to governments and it is typically government agencies that are entrusted to deal with the recommendations that the Commission makes. The Commission hears this now and I am quite certain that they will take that into account when we make our recommendations to governments.

Doug Anderson

When you make your recommendations as government to government, remind them that the clock is ticking. There's only 631 left. Out of that there's a 10% increase in cancer because of the chemicals, and because Canada and the United States had the [in]decency to pollute the area and contaminate our nation. This is uncalled for, but if you are going to be a politician, you can sit there and lie and steal and cheat the people. The money that you spend talking and having conventions like this, you should spend it and buy fresh water for somebody to drink. I find it deploring that the United States and Canada systematically have worked out a deal to commit genocide on our people. As soon as I can find the right international attorney to work with me, I will sue Canada and the United States. I will keep suing you, and suing you, and suing you and hopefully, maybe one day I will break your economy and then you may realize when your kids are hungry what you have done to our people. I want to thank you for your time.

Karey Shinn, Chair, Safe Sewage Committee

Hello, my name is Karey Shinn. I am the current chair of the Safe Sewage Committee. We have been dealing with the main sewage treatment plant in Metropolitan Toronto, notably the largest sewage plant in the country. We have had some success. But I would first state that with the native presentation that was made, I hope they do get a position on this Commission because the concept the native people have of land is something I would like that I haven't been given as a Canadian citizen, either. I was never even given a treaty to tell me that I had it in the first place. The land that I own under my house, they use to tax me and they don't use my money for any purpose that I can direct, so I am all for the native people being on this Board and trying to bring home the concept of land as being something more than just a vehicle to tax us. Thank you.

I would like to state that **I have a couple of recommendations**. One of them is that I see the profound lack of mechanisms for the IJC to implement anything that is in all these books that have been generated for a long time.

One of them I would like to see is budgets and projects. I have looked at four-million dollars worth of projects in the Metro Water Pollution Control budget alone that will do zero to protect the environment because they only enhance the status quo. They will argue for more of the same old things that have been polluting the lakes since 1949, including up to six new incinerators, and we are not happy with this and we don't have a mechanism to give them any kind of conscience.

At the moment -- and I am hoping this changes with amalgamation --there is no Board of Health. These engineers that seem to have all their buddies making big bucks off projects that promise to do so little you could hardly guarantee they wouldn't work. If I told my children I was doing nothing and I carried that out, you know, we're supposed to applaud our politicians for doing nothing. We're not interested in transferring our combined sewer overflows from the western beaches to the sewage plant that can't treat it.

We're not interested in having pesticides and herbicides and stormwater runoff allegedly eliminated by simply moving it to a treatment plant and sent further out in the lake with detergents and nonylphenols, that we know from reading things like Theo Colborn's book, simply combine to produce a more toxic soup. The vocabulary that's been created about *eliminating* things has simply been reduced to *transferring* them. So I very much caution that type of language and look for instruments in budgets and projects with municipalities that carry nothing in Section D for cost-benefit analysis and nothing in Section E for improving the environment, and those are probably the only two things that a politician would understand.

I think we often face crises in the environment and it's not up to you people at the IJC to solve it, it's a couple of politicians in a room tearing out their hair. They don't know where to rely on information and they have no mechanism at the municipal level to even look where the information exists.

We would like to see sewage sludge incineration phased out. It's one of the biggest single sources of carbon dioxide that we are currently putting into the air. I suggest we move a long distance toward meeting our CO_2 objectives as a country if we simply stop burning sludge at all five currently burning installations in Ontario alone. I haven't seen any other political jurisdiction on the continent that has as many incinerators -- 50,000 dry tons a year at the Ashbridges Bay plant alone could make anybody sick.

I would like to see that we have a prohibition in stormwater projects of combining them with sanitary sewage. I think it's quite bizarre that we think that we can send, you know, we're talking about projects that total $2-billion in stormwater projects in Metro alone that will simply combine with sanitary sewage and the politicians say that we're cleaning up a beach. I'm quite appalled at the way the politicians don't know and have no awareness of anything that's going on that they feel that can apply to local decisions. I urge you to look at their budgets. If you could arrest the spending of money somehow so they have to meet some of these criteria that we're supposed to be meeting. I am not just a member of the municipality as a voter. I am a member of Ontario as a voter and my country as a voter and I don't see the collective agreements that we're forming as a nation or a province are being upheld by any decisions that are going through my municipality and I have an expectation that they would be, and I am disappointed that they are not. Thank you.

Jim Jontz, Citizens Trade Campaign, and Western Ancient Forest Campaign (U.S.)

Hello, my name is Jim Jontz. I am associated with two organizations: the Citizens Trade Campaign and a group called the Western Ancient Forests Campaign. It may seem odd that two groups such as those would come here to speak to you, but indeed the environmental problems that you are grappling with are continental, if not global. And the economy in which we dealing with these problems is surely a global economy. I want to come to learn this weekend what is happening with respect to the Great Lakes and speak just briefly about a couple issues in the international arena that will have an impact on the Great

Lakes.

Last night, secretary Garamendi mentioned that there will soon be considered a new international agreement that will affect invasive species. This will be taken up by the Food and Agriculture Organization in Rome within a matter of days. This does not affect the aquatic species that are well known as bioinvasive problems for the Great Lakes but does affect plant species. It affects vital sanitary standards. Our organization and many others have called attention to the problems with this proposed agreement because we see it as a step backwards at a time when global trade requires us to be more vigilant. So, I would commend this to your attention because we are hopeful that the FAO will not adopt this agreement but will consider further the need to more effectively address these issues and enhance the power of nation states rather than diminish it to meet real ecological needs by addressing bioinvasive species.

The second issue I want to mention quickly because it is very much on the front burner, at least in the U.S., is the prospect that Congress of the U.S. may soon vote for fast-track authority under which various agreements, including the expansion of NAFTA, a free-trade agreement of the Americas, APEC, and even potentially a multilateral agreement on investment could be negotiated. I don't know how you may have interacted in the past with the North American Commission on Environment or with other components of NAFTA, but my hope is that you will advise the governments, particularly the U.S. about the need for international trade agreements which move us ahead on the environment instead of backwards. It is very disappointing to environmental groups in the U.S., particularly those who have supported NAFTA and supported fast track. But the fast track now before the Congress, actually is a step backwards. It would prohibit even the kind of side agreements that were negotiated under NAFTA from being a part of NAFTA expansion on the fast track. It would allow challenges to environmental laws like, at the current time the Ethyl Corporation is challenging the Canadian government on regulations relating to MMT which is a step backward. So, for many reasons, we would urge the governments to think carefully about this kind of agreement. We believe that international trade agreements can be a positive thing for the environment. It is very disappointing to many of us in the States that our country seems to be moving backwards and we believe that trade and the environment can both be attained at the same time. They are not mutually exclusive, so it is perplexing to us that our government somehow sees the need to limit environmental protection as a condition for global trade. We reject that notion.

Finally, I want to conclude by saying thanks to the IJC. I believe that you have demonstrated some approaches to international cooperation that would be well for others to study. With these very difficult issues, and as we think about future agreements on this continent and globally that affect the environment, I would hope that the way that the IJC has moved forward on issues affecting the Great Lakes could be studied by our governments as a positive model. I would be remiss if I did not also take advantage of this opportunity to publicly thank Commissioner Bayh from Indiana. She will always be First Lady Bayh to me, but I hope that I can speak for other hooziers in saying how proud we are to have Commissioner Bayh serving our state on this Commission. Thank you very much for your time this afternoon.

Susan Bayh

One last housekeeping issue. I promised that gentleman two minutes to. And if you promise to go only two minutes, I will let you. Can you promise to go only two minutes? You will only go two, right? You keep your promise, I'm keeping mine.

James Rauch, West Valley Coalition (continued from previous)

I will try to summarize what I ... I haven't been to an IJC meeting since Traverse City, so I probably was incoherent in trying to get everything I had to say in three to five minutes. I criticized the IJC for that and hope that their consultation efforts include environmental and NGO groups, which I don't see on their website page.

I'll recap, I think that the radionuclides need to be accorded greater persistent toxic chemical status. That apparently has been dropped. It is not in the new priority list. I don't know why it shouldn't be because the governments haven't responded doesn't mean that IJC should abandon its role in bringing the important information forward. Since I am on that topic, I think I need to reemphasize that. I would hate to see the IJC become neutralized by government appointments to the Commission. I think that we are in in real danger of that. We've seen funding cuts to IJC itself and research efforts. I am very concerned also about this loss of research, institutional memory, it's been a problem at West Valley. We go back ten years and we can't find documents that are very important. Now, we are dealing with radioactive isotopes here that have half-lives of thousands and millions and billions of years.

So the three sites that need to be addressed by NTF are West Valley, predominantly; the radium at the Lake Ontario ordinance works which is called the Niagara Falls storage site; and the Tonawanda DOE site, formerly utilized Manhattan site. One other thing, the proposal for, in this document that was just presented, needs to include D&D of other facilities, other than reactors. The nuclear portion there addresses reactors only. It needs to include sites like West Valley. Thank you.

INTERNATIONAL JOINT COMMISSION GREAT LAKES WATER QUALITY AGREEMENT PUBLIC FORUM

Niagara Falls, Ontario
November 1-2, 1997

CLOSING COMMENTS

L.H. Legault, Chairman, Canadian Section, IJC

If you have further comments, you know that you can give your comments in writing to the Secretary.

Ladies and Gentlemen, that concludes our Agreement Public Forum for 1997. We've been overwhelmed by your interest. Maybe even *you* have been overwhelmed by your interest. Your concern, your passion and your dedication to the Great Lakes. We've heard you and we will carefully consider everything you have said as we now begin to write our Ninth Biennial Report to governments. Again, I remind you that our record remains open until December 2nd. If you have anything else you want us to consider, please write either to Chairman Baldini or myself direct.

As Chairman Baldini said yesterday, our intention is to release the report during the Spring of 1998. Writing the report will be a challenge, clearly we cannot include each and every point you've heard over the past two days, nor indeed everything we've received verbally or in writing over the past two years. As we indicated to you yesterday, we have more than 40 reports and documents to take into account. We have picked up on a number of key points and themes which will be the focus of our report. We have our work cut out for us we know. We will be working very hard in the coming weeks to commit our advice to governments in writing in the clearest, we hope, and most convincing terms. If all of the conviction that you brought to the discussions today and yesterday was in anyway contagious, I think we may have one of our most persuasive biennial reports ever. Thank you all very much for participating. And goodbye.